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THE FAR EASTERN REVIEW

VOL. VI: No. 1. MANILA, SHANGHAI AND YOKOHAMA, JUNE, 1909. 25 cents U. S. Currency 50 " Philippine Cy.

THE SHANGHAI MUNICIPAL COUNCIL, 1908

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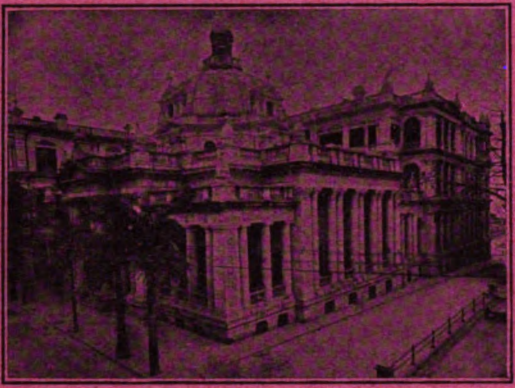

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THE FAR EASTERN REVIEW

COMMERCE ● ENGINEERING ● FINANCE

VOL. VI. MANILA, P. I., SHANGHAI, AND YOKOHAMA, JUNE, 1909 No. 1.

SHANGHAI PUBLIC WORKS

(From our own correspondent.)

The most interesting portion of the Annual Report for the year 1908 of the Shanghai Municipal Council is undoubtedly the section on Works Matters containing the Report of the Engineer and Surveyor. The brief sentence commencing the Report is in a way a surprise to many. "I beg to submit my twentieth Annual Report for the year ending Dec. 31, 1908." Twenty years at the head of the Department, twenty years as Engineer and Surveyor for the Municipality of Shanghai. When we stop to consider what the settlement was twenty years ago, nay, only seven years ago, when we look around and see the vast strides that have been made in developing the old treaty port into the fine cosmopolitan city of to-day, with its famous Bund, well-laid out

(Continued on page 4.)

INDOOR STAFF OF THE SHANGHAI PUBLIC WORKS DEPARTMENT

FIRST ROW—*(left to right)*.—P. Tilley, *Divisional Engineer.* R. C. Turner, *Chief Architectural Assistant.* C. H. Godfrey, *Deputy Municipal Engineer.* **C. Mayne, *Municipal Engineer, (in Center).*** C. Harpur, *Chief Engineering Assistant.* W. E. Sauer, *Chief Surveying Assistant.* J. E. Needham, *Divisional Engineer.*

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THE FAR EASTERN REVIEW

GEO. BRONSON REA, M. E.
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MANILA, SHANGHAI AND YOKOHAMA, JUNE, 1909

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A CHINESE LOCOMOTIVE SPECIFICATION

The following specification, attached to tenders for a locomotive, has been recently issued by the Kiangsu Railway Company, a Chinese concern operating the Railway between Shanghai and Kashing. Attached to the printed specification was an illustration on a card depicting a type of locomotive of a well known European manufacturer. The specification reveals three points of interest to the reader. The first is that it is an exact copy of the specification submitted to the railway, by the agents of the locomotive in question, and reveals the methods employed to disparage the efficiency of American locomotives, three of which are already working on the railway in question. Criticism of such tactics is of course superfluous. Again the fact of reprinting word for word such a specification from the maker's agent and sending them out for other competitors to bid on, gives the world an insight into the deep professional ability and knowledge of the officials of the road who published the tender.

While we may take the exception to some of Dr. Morrison's criticisms on the construction and equipment of this railroad, we must confess that his remarks about the inexperience and incapacity of the officials are somewhat strengthened by this recent exposure of their indiscretion and apparent inability to word their own specification.

SPECIFICATION FOR EIGHT WHEELED PASSENGER TRAIN LOCOMOTIVE WITH SEPARATE TENDER FOR THE SERVICE OF THE KIANGSU RAILWAY COMPANY

Gauge	4' 8½"
Cylinder Diameter	18"
Stroke	26"
Driving wheel Diameter	69"
Engine truck wheel	39¼"
Driving wheel base	102¼"
Total wheel base	391¼"
Working pressure	170 lbs. per sq. inch
Grate area	24.75 sq. feet
Heating Surface	1260 sq. feet
Tank-capacity, water	2665 gallons
Tank-capacity, coals	6.5 tons
Weight empty of locomotive	99440 lbs.
Weight empty of tender	34760 lbs.
Weight loaded of locomotive	111760 lbs.
Weight loaded of tender	72160 lbs.

Total weight: 183920 lbs. equal to 83.5 tons

The specified locomotive is built according to the most improved design and the latest practice and experiences of locomotive builders especially as to accuracy and high finish.

Construction as well as workmanship cannot in any case be compared with those of American locomotives, which are not of the same high standard than these of European make. In consequence of this, American locomotives are cheaper, but they will last only for 10 to 20 years, while the locomotive offered by us will be capable of doing work full during 30 years and more.

Regarding the construction of our locomotive there is say that all parts subject to wear and tear by friction are provided with the proper lubricating devices: they are case-hardened as far as they are of iron or mild steel. Dimensions of these parts are calculated with good margins considering the fact, that they must fulfil what is expected from them under the greatest possible wear and tear. The locomotive boiler is provided with a steam dome and fitted with the necessary cleaning openings. All flanging of boiler plate is done with care by hydraulic presses. Revetting is also done by means of hydraulic machinery. The steam boiler as well as the engine is provided with all necessary fittings and safety devices, all principal parts, as piston cross head, etc., are made with especial great care. The locomotiev is equipped with central lubricating device, Janney-couplings, Westinghouse air brake, sandbox and device for wetting the tyres.

1). The offered engine is able to run up to a speed of 50 and more miles per hour, but under the prevailing conditions we consider the suitable maximum speed, at which the engine should be run 40 miles or say 120 li per hour.

2). Total traction power of engine at a speed of 7 miles per hour about 13000 lbs. equalling a hauling capacity of about 800 tons incl. locomotive, or about 708 tons load of train in these figures the frictional resistance is taken with 10 lbs. per ton load and adhesion is taken at 1-5 only. Both figures are taken very low and in America offers as rule 9-40 adhesion and lbs. resistance per ton are calculated in with which theory would give a hauling capacity of about 55% larger than stated above. Considering that the conditions of a track are not ideal, we adopt only figures as obtained in actual working condition.

3). All conditions otherwise the same as above, the engine will haul:

428 tons on a grade of ½ or say 7' per li
308 tons on a grade of 1 or say 14' per li
253 tons on a grade of 1½ or say 21' per li

4). The offered engine is of the "Atlantic" type, and has 4 travelling wheels and 4 driving wheels, and represents a Standard engine as used in any country by the hundreds in modern Passenger Traffic.

—G. B. R.

MR. JOHN HAYS HAMMOND

The cabled announcement through Reuter's agency that the President has offered the post at Peking to Mr. John Hays Hammond is a striking instance of how the public opinion of the East is moulded through British news agencies. The only prominence attained by Mr. Hammond, according to Reuter, was the fact that he was sentenced to death by the Boers for his share in the Jameson Raid, and his qualifications for the post lie in the anxiety of President Taft to secure a good business man for the position in view of the international struggle for loans and concessions in which America has not hitherto shared. The *Shanghai Mercury* commenting editorially on the appointment says:

"It is difficult to believe that America under the Taft régime is about to join in the somewhat sordid and not very successful scramble for concession in China. The story that Mr. John Hays Hammond was offered the appointment of Minister to Peking, which Reuter wires on the authority of the New York *Herald*, is, however, somewhat startling, for we should have thought President Taft would not so degrade American diplomacy. Fortunately a later telegram informs us that Mr. Hays Hammond has declined the appointment, and it is to be hoped the President will now make a more satisfactory selection. Although Mr. Hays Hammond would no doubt have proved an excellent concession hunter, his record is hardly such as would have inspired confidence in his conduct in such an important position as United States Minister to China. Mr. Hays Hammond, who is by profession a mining engineer, was born in San Francisco in 1855. He was appointed special expert to the U. S. Geological Survey in 1880 which was engaged in examining the California Goldfields. He became consulting engineer for Barnato Brothers in South Africa in 1893. Later he joined Cecil Rhodes, and became one of his strong supporters in politics. He took an active part in the reform movement in Johannesbug which led up to the Jameson Raid. It is said he strongly disapproved of the raid, but after that fiasco he was one of the four leaders of the Johannesburg Reformers who were tried and sentenced to death by the Boers on the charge of conspiracy. The sentence was commuted to fifteen year's imprisonment and he was later released on payment of a fine of £25,000. He then went to London and engaged in mining speculations, and afterwards returned to the United States, and interested himself in various mining ventures. He has even travelled in Siberia gold hunting."

Why this appointment would degrade Amercan diplomacy, and why Mr. Hammond should be characterized as an excellent concession hunter, and why his record is such as to discredit him for the post, is something which

probably only the Editor of the *Shanghai Mercury* can explain. What is Mr. Hammond's record? As the *Mercury* accurately states in its quotation from Who's Who in America, Mr. John Hays Hammond is a Mining Engineer, but what our esteemed contemporary is apparently unacquainted with, is the fact that John Hays Hammond is the foremost engineer in his profession, being President of the American Institute of Mining Engineers, 1907-08, and the highest paid man in the world. His salary from one corporation alone is said to amount to $500,000 (gold) per annum, and on his decision millions are invested or otherwise. A record, which brings a man to the head of this profession and the enjoyment of the largest salary in the world, is one which must inspire confidence and respect despite the contention of our contemporary to the contrary. If he had been a lawyer, an educator, an ecclesiastic, an editor, or the top of his profession in any other line the inference is that his record would inspire confidence, but to be simply a strenuous and successful mining engineer, even to travelling in Siberia gold hunting, absolutely disqualifies him for a diplomatic post.

If this appointment was offered to Mr. Hammond by the President, we resent the imputation that it would degrade American diplomacy, in fact we distinctly contend that the service would be highly honored by his acceptance.

We hold no brief for Mr. Hammond and it was a foregone conclusion that he would decline the honor. As we know the policy of the President is to appoint a minister to Peking who will demonstrate some interest in commercial affairs, and may be commit the unpardonable blunder in the eyes of our European friends of seeking American participation in the development of China, we look forward to further criticism of any appointee who may have the presumption to declare his intention to interfere with the monopoly of Chinese mining and railway development, now held by European interests.

AMERICAN CONSULAR CHANGES

Shanghai, June 1st, 1909

American diplomatic and consular changes in China have furnished a topic for considerable comment. Mr. Denby's recall without explanation to report to Washington, and his subsequent transfer to the post at Vienna, has invoked much criticism from the American and foreign element. After the speech at Shanghai delivered when he was Secretary of War, it was hoped that, as President, Mr Taft would entertain the same opinion of Mr. Denby as uttered at that time in the following words: "The administration at Washington has, within the last three years, given especial attention to the selection of Consuls in China. This was made evident in the selection of both Mr. Rodgers and Mr. Denby as Consul General at Shanghai. It is a new sensation for an American to come to a Chinese city and find as its consular representative one who knows the Chinese language and who understands the Chinese Empire, as few Chinamen understand it. I congratulate you citizens of the United States on having such a representative of your interests in this great commercial community as Mr. Denby.'"

The transfer of Consul General Wilder from Hongkong to Shanghai certainly carries out the policy then outlined, as the new appointee is highly qualified for this important post, and there is little to choose between the two men. Although Mr. Wilder has not the advantage of such a long experience in China as Mr. Denby, and lacks knowledge of the language, he may be expected to fill the post at Shanghai to the entire satisfaction of the government and everybody concerned. If judged by his record at Hongkong, it is distinctly fortunate for American interests that he has been chosen to succeed Mr. Denby. So in this appointment the President has fully lived up to his promises of two years' ago. While we may be puzzled as to the motives underlying the sudden transfer of Mr. Denby, the President has undoubtedly acted on what appeared to him as good grounds, and while we may deplore the action, yet we may have faith in the sense of fairness and justice of our Chief Executive to give Mr. Denby an opportunity to explain ex parte accusations that have been thought against him by unfriendly parties.

Mr. Denby leaves Shanghai with the sympathy and cordial friendship of not only his own countrymen, but the Chinese and foreign elements as well. It was hoped that the President would have recognized his worth by promotion to Peking, and many genuine expressions of regret have been called forth over his transfer to Vienna.

—G. B. R.

THE FAKUMEN AND ANHWEI RAILWAYS A CONTRAST

The contract for the construction of the proposed Fakumen extension of the Imperial Railways of North China was concluded by the Chinese Government with a representative of the British firm of Pauling's Ltd., and the loan for the work was financed through the British and Chinese Corporation. According to the Chinese version of these negotiations, this contract and loan were placed on the most favorable terms ever received by China. This secured for China the support of British interests, and has given her strength to combat Japan's prohibition to the extension. Apart from the universal sympathy extended to China, in her endeavor to extricate herself from the self denying clause of the secret protocol of the Peking Agreement, British opinion has undoubtedly been largely influenced from the fact that British firms were to construct and finance the work.

It would seem logical that China should show some appreciation of this support, but recent news frow Peking would indicate the contrary. Pauling & Company it appears also concluded an agreement with the son of the ex-Viceroy Chow-fu, Chou Hio-hsi, Director General of the Anhwei Merchants Railway Company, in which the British Company was to take over a loan of Taels, 10,000,000 to construct the various railways in Anhwei Province. Delivery of railway materials and the management of the lines was to be reserved exclusively to the British Company.

However, the Board of Communications has cancelled the agreement. While there is no objection to floating the loan, the condition that the delivery of railway materials and management shall be exclusively British is rejected.

—G. B. R.

CONCRETE VERSUS BRICK AND PIPE SEWERS

The committee on sewers of the Illinois Society of Engineers and Surveyors recently submitted an interesting report on the relative adaptability of concrete, brick and pipe sewers respectively, a résumé of which appears in the *Municipal Journal and Engineer* as follows:

"The perceptible changes in sewer construction have for the past few years been very slight, with a tendency toward the use of concrete, both plain and reinforced, in the place of brick and the larger sizes of vitrified tile pipes.

"The City of Chicago was one of the first cities in the State to build a system of concrete sewers. Cairo, Decatur and Elgin have each a system of concrete trunk sewers; East St. Louis has a similar system in contemplation. The concrete system for all large storm or combined sewers has become a factor which will soon occupy first place, if indeed it cannot be conceded that position now.

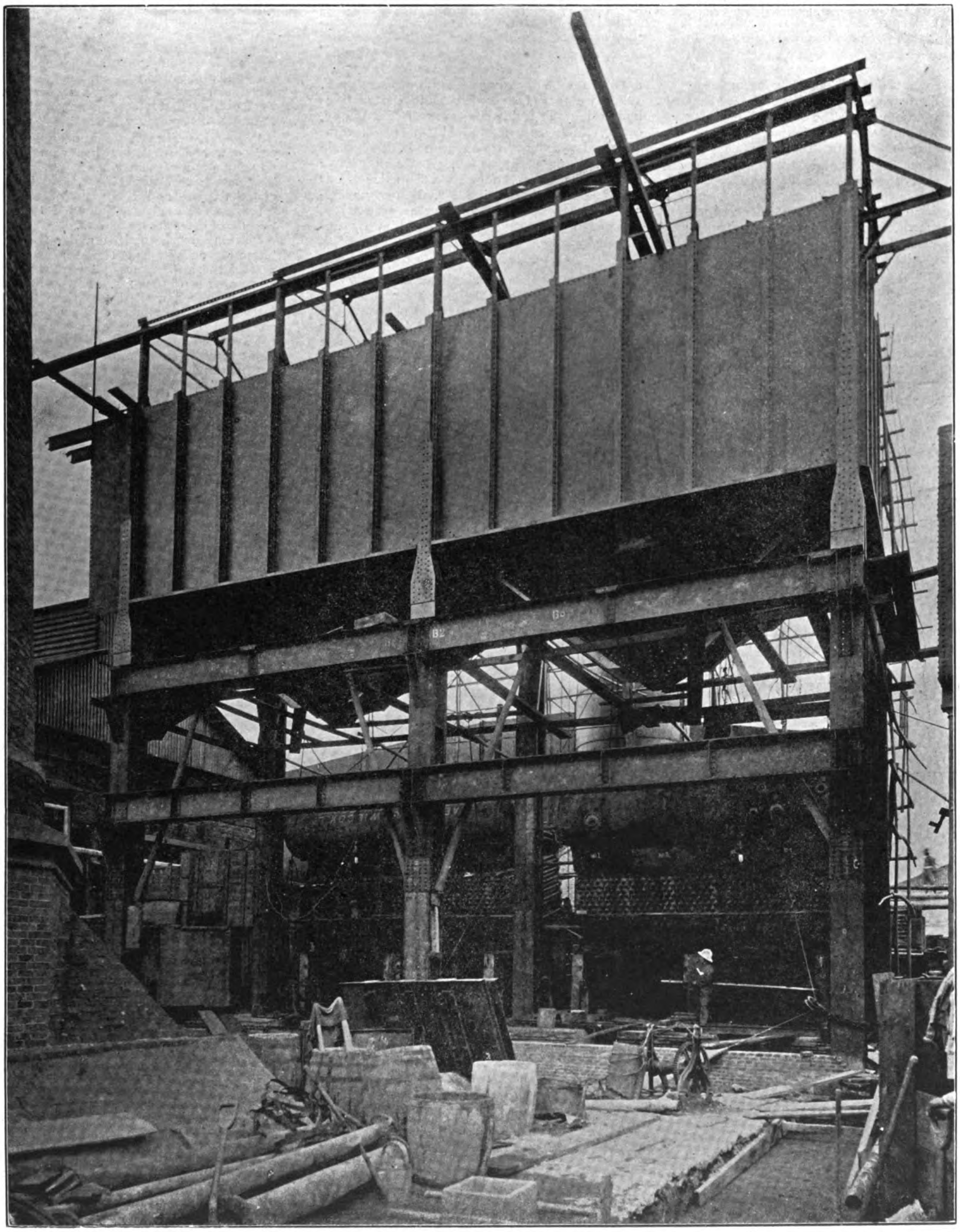
"Several papers have appeared since concrete-sewer construction has come into more popular practice under such general titles as 'Concrete *vs.* Vitrified Sewer Pipe' and 'Concrete *vs.* Bricks for Sewer Construction,' all of which are evidently intended to discourage the use of concrete for sewers.

"Taking up the articles under the first head, 'Concrete *vs.* Vitrified Tile Pipes,' we feel the zeal of the authors has allowed them to carry a comparison too far. Few concrete sewers have been constructed less than thirty-six to forty inches in diameter, which are the largest sizes of tile pipe. The two methods of sewer construction touch at but one point, and that point may be considered an extreme in both—the maximum diameter for pipes and the minimum for concrete. The most serious point raised against the use of concrete for sewers is the so-called disintegration of concrete claimed to be due to acids in sewage or formed from gases thrown off by septic action. The citations where concrete sewers have apparently disintegrated are scattered and few, the principal ones being Brooklyn, N. Y., Oshkosh, Wis., and San Francisco, Cal. Sewage to contain an objectionable amount of acid would of necessity be such as is found only in sanitary sewerage systems or the waste water from industrial plants where acids may be used. As yet the general practice for concrete sewers is their use for storm or combined systems. Lastly the acid reaction upon concrete has not been proven to be detrimental to any great extent, not as much to be feared as the alkalies of the arid regions of the West. Again if the action of the sewage will disintegrate the shell of a concrete sewer it will prove equally as detrimental to the mortar joints of pipe sewers. We need feel no uneasiness on account of the stability of either construction when conditions are normal, but the field of usefulness for each is so clearly defined and different that the trend of practice does not look toward the displacement of either method with the other.

"In 'Concrete *vs.* Bricks for Sewer Construction' many points appear for comparison, and apparently the only field that concrete enters as a competitor in sewer construction is that of brick. In comparing the two the question of any disintegration is practically eliminated as the chemical reaction of any solvents in sewage detrimental to concrete would prove equally as injurious to the mortar joints in brickwork. The amount of excavation required for both forms of sewers is nearly equal. Other points appearing so nearly the same in both brick and concrete sewers, there remains only to determine the relative cost of the two. In brickwork the shell can only be increased for different sizes of sewers by additional rings of brick which measure about four inches, while in concrete sewers the shell can be increased by as small an addition as one-half an inch. Probably the most effective argument in favor of concrete against brick construction is the fact that brick sewers can only be constructed with high-priced skilled labor, while for concrete the cheapest labor obtainable is often sufficient.

"As a general rule concrete sewers are constructed in circular or near circular form, the thickness of shell being one inch per foot of diameter plus a fixed number of inches, this constant varying from one inch in reinforced concrete to three inches for plain concrete. Steel centering is now very generally used in concrete sewer construction.

"The Committee on Sewers feel that the Society should, through its various committees, begin to take up the work of gathering and compiling data which could be tabulated and published and corrected from year to year so that soon we may have in the reports of our proceedings an index of the entire State relative to the condition and form of all public utilities such as sewers, disposal plants, water supply, filtration plants and drainage districts."



SHANGHAI MUNICIPAL ELECTRICITY WORKS.—BABCOCK AND WILCOX WATER TUBE BOILERS, OVERHEAD COAL BUNKERS, AND STRUCTURAL STEELWORK IN COURSE OF ERECTION.

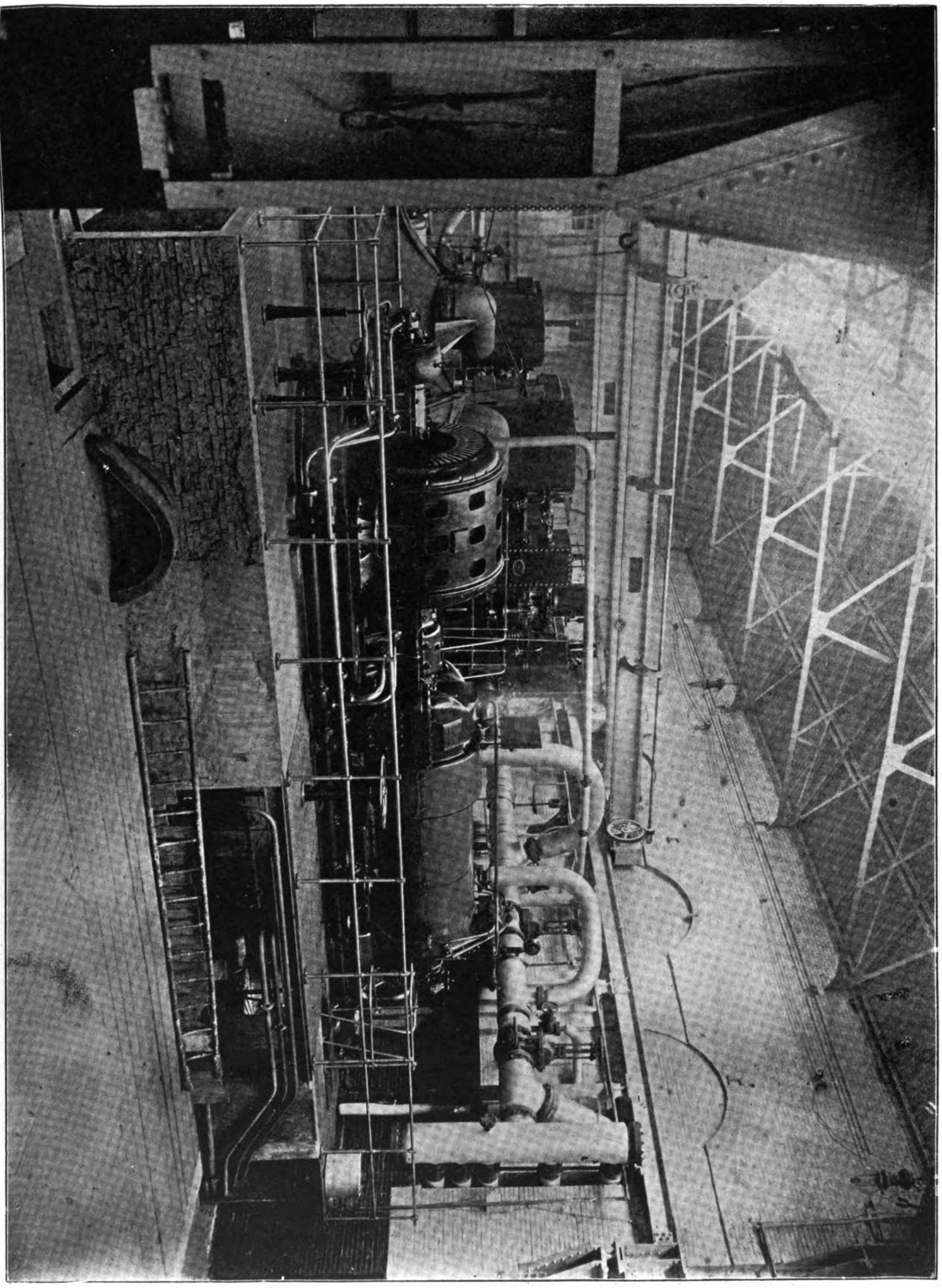
SHANGHAI PUBLIC WORKS

(Continued from page 1.)

parks and recreation grounds, miles of streets and roads, handsome public buildings, bridges drainage system, and the many improvements which all lend to beautify the settlement, it is a revelation to know that all this work is directly due to the engineering guidance and supervision of one man. And yet, since 1889, the engineering work of the settlement has been directed by Charles Mayne, Member of the Institute of Civil Engineers and Member of the American Society of Civil Engineers, who is therefore largely responsible for all the vast improvements, and to whom is due the credit for the many excellent improvements which make the city so attractive. Such a record is difficult

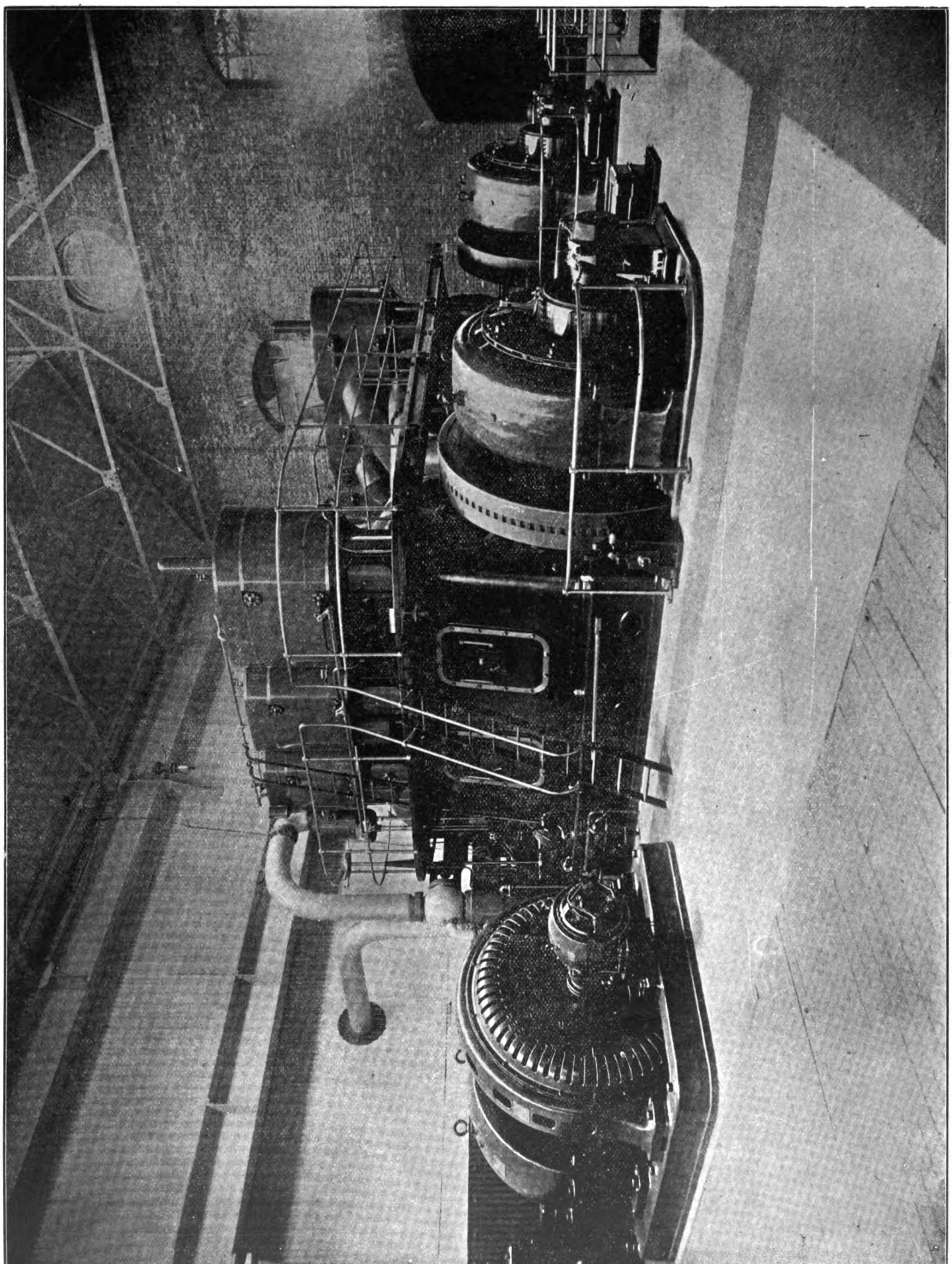
to equal, and speaks volumes for the efficiency of the man, and the wisdom and judgment of the various councils which have retained his services. From the viewpoint of the Engineer Shanghai, as it appears today, is an eloquent tribute and testimonial to the efforts and ability of its Chief Municipal Engineer.

When Mr. Mayne assumed charge of the Department in 1889, the Municipal Property List contained only the Central Offices, the Louza and old Hongkew Police Stations, four cemeteries, the Public Garden and Foreshore, and the Jessfield Road Depot. The Property List to-day embraces the Central Offices with Health and Fire Departments added, the fine

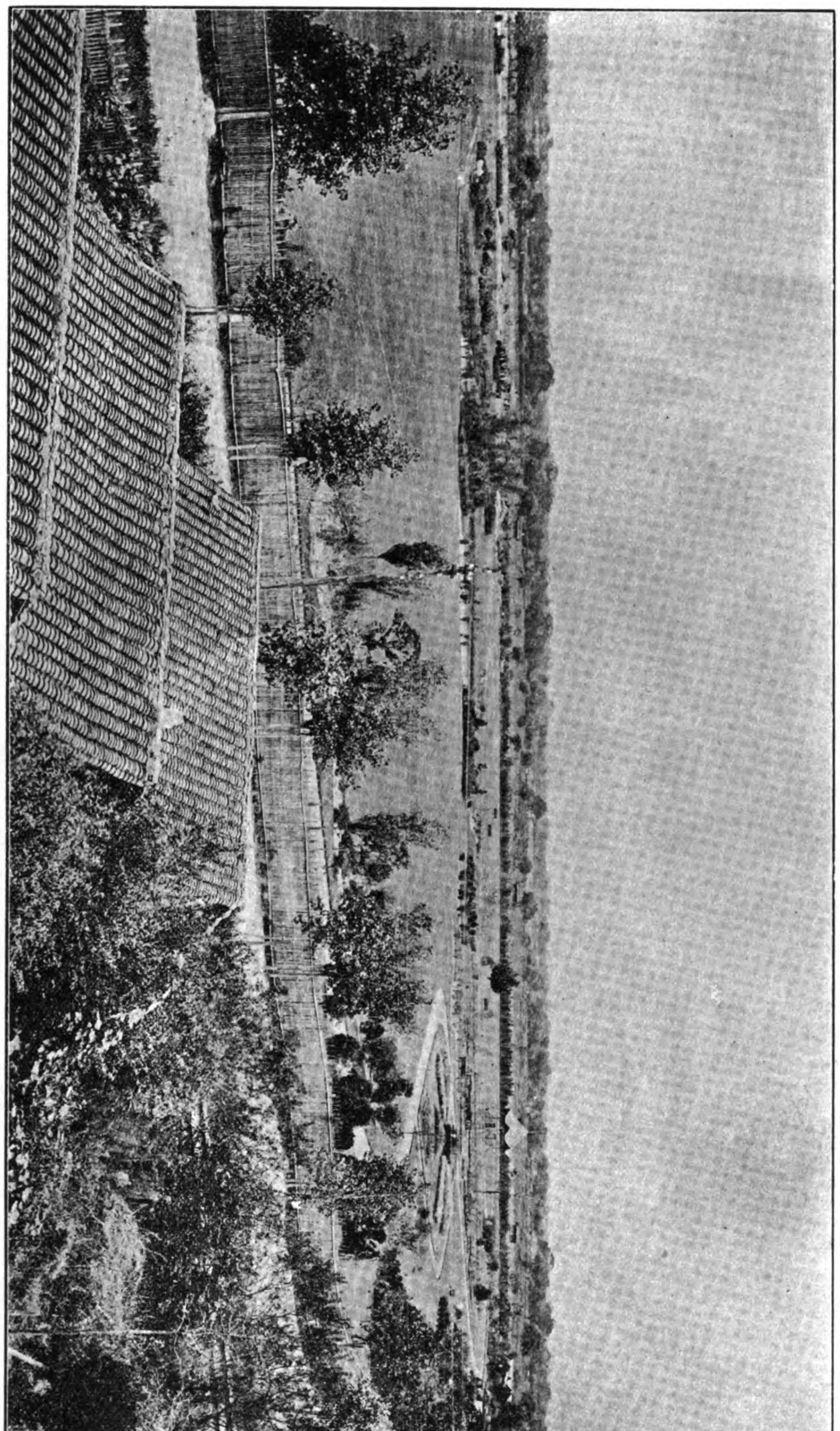


SHANGHAI MUNICIPAL ELECTRICITY WORKS.—PARSONS-PEEBLES 800 KILOWATT TURBO-ALTERNATOR.

Town Hall on Nanking Road, twenty Police Stations, including quarters, a large modern jail, four fire stations and a workshop, Volunteer Headquarters, Rifle Range and Riding School, four Hospitals, Public Swimming Bath, seven markets, a slaughter house and cattle sheds, six cemeteries, the electricity works and site for a new station, three public schools, ten parks or recreation grounds, a quarry, two nurseries, twelve works depots, drainage systems, latrines, etc., in addition to considerable surplus land, and 66 miles of new roads added



SHANGHAI MUNICIPAL ELECTRICITY WORKS.—TWO 600 KILOWATT BELLISS-PEEBLES TRACTION GENERATORS AND BRUCE PEEBLES 300 KILOWATT MOTOR GENERATOR.



HONGKEW RECREATION GROUND, SHANGHAI.

to the former mileage. Bridges, bundings, drainage, road extensions and widenings involving large expenditure have been successfully carried out.

In 1889, when Mr. Mayne commenced his labors, he had only one assistant engineer, and two outside foremen. To-day there are 33 salaried men connected with his indoor staff alone exclusive of writers, tracers, messengers, etc., with a total annual expenditure on pay and allowances of Tls. 130,562. In addition, there is a competent outside force on Roads, Parks, etc. During the last fiscal year Tls. 569,834 were employed on current expenditures to run the department and maintain ordinary works, and extraordinary expenditures amounting to Tls. 830,450 including a deficit of Tls. 201,513 from the previous year.

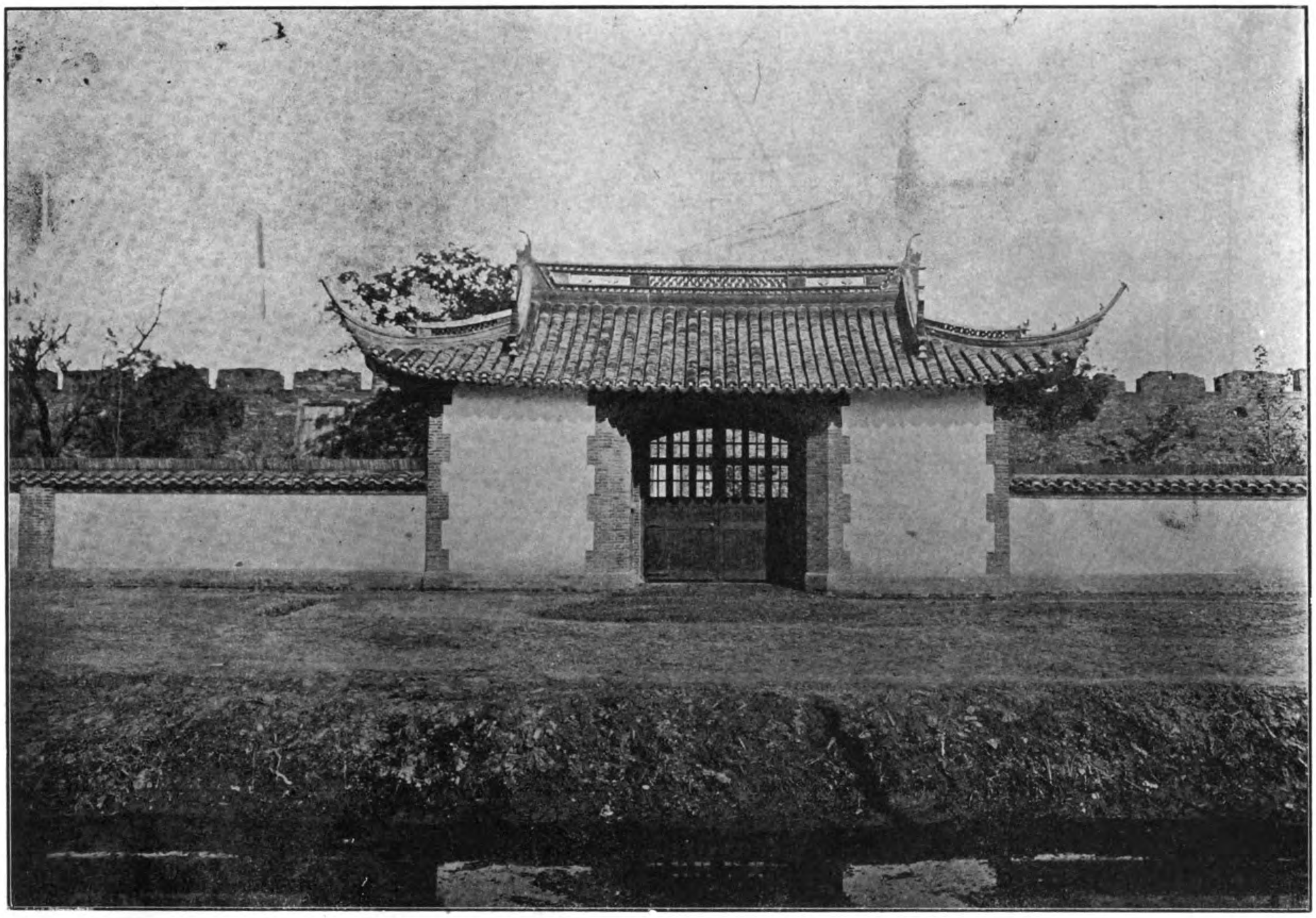
For the information of the Council and ratepayers, written reports are furnished on practically all public works, and the growth of the department can be appreciated by the fact that in 1889 seventy such reports were submitted, while, in 1908, 720 reports were forwarded. Under the supervision of the Engineer are several special branches, such as the Cadastral Office, Building Inspection, Concrete ware factory and quarry, which are of considerable magnitude, and the surveying Bureau. The Settlement was extended in 1893 and again in 1900, requiring a complete resurvey, and a staff of surveyors is constantly at work keeping it up to date. This branch of the Department is an important part of the work, as the land tax revenue depends on accurate surveys.

The Public Works Department of Shanghai was established as early as 1843 and its chief work for years was confined to the construction and repair of roads, jetties, surveys and surface drainage. With the growth of the Settlement other duties were added from time to time, and the scope of work extended to cover the situation. The area of the original settlement was 1,080 mow; with the addition of Hongkew in 1863 it was increased to 9,406; a further extension was secured in 1893 and another in 1900, which brought the area up to over 33,000 mow or about 9 square miles.

Roads.—One of the greatest difficulties encountered by the Department has been the question of uniform roads. It appears that the original Committee on Roads, in the early history of the Settlement, failed to foresee the great development of the port, and considered that a width of 22 feet was sufficient. This action on their part was undoubtedly traceable to financial reasons, for although land at that time could be purchased for 25 to 30 Taels a mow, the revenue appropriated for that department was insignificant, not exceeding 1,200 dollars, and in 1852 it was only $5,000 or barely sufficient to maintain the few roads in proper repair. As the Council lacked the right of eminent domain, the negotiations for the purchase of land for extensions or widenings had to be carried out with private owners, many of whom refused to part with their lands except at prohibitive rates, and as a natural consequence many roads are irregular in width and alignment. In 1899 the Council obtained compulsory powers under the articles of the new Land Regulations, and the Chinese authorities also authorized the expropriation of lands for road purposes at nominal rates. Since this date the extension of existing roads and the opening up of new ones have progressed in a very satisfactory manner. In 1889 the length of settlement roads was about 36 miles, while today there are 102 miles, of which 37 are macadam and 16 chip paved, 3 miles of brick and a short length of experimental Tar Macadam, while the balance are either dirt roads or roads in the process of construction. In addition there are 80 miles of sidewalks and footways, nearly half of which are laid in cement concrete, and the balance in chip and tarred macadam. There are six steam road-rollers and scarifiers kept busy on road work.

The heavy traffic on the main macadamized roads call for large maintenance expenses, and the Chief Engineer has advocated the relaying of these streets in wood blocks.

Hard wood blocks, although the most costly of all pavements, have given results that far surpass any other system. In the city of Sydney, N.S.W., many miles of block pavements are in use. Queen Street, with its great traffic over a block pavement, has shown a wear of one-sixteenth of an inch in eight years and the blocks were in almost as good a state as when laid. The best results came from the use of well seasoned heartwood blocks of jarrah or karri, tallow-wood, blackbutt or red or blue gum. These blocks were first dipped into hot coal tar and hot wood preserving oil and left to absorb, before being placed in position. The original cost of this type of pavement in Sydney was about 12 shillings per square yard, with an annual maintenance cost of about 1 penny per sq. yard.



SOLDIERS' CEMETERY.—GATE (SHANGHAI MUNICIPAL COUNCIL)

The durability of the block pavement is better shown by the fact that under heavy traffic the wear is only about 1-50 inch per year as compared to a wear of 1 inch on blue stone blocks under similar conditions.

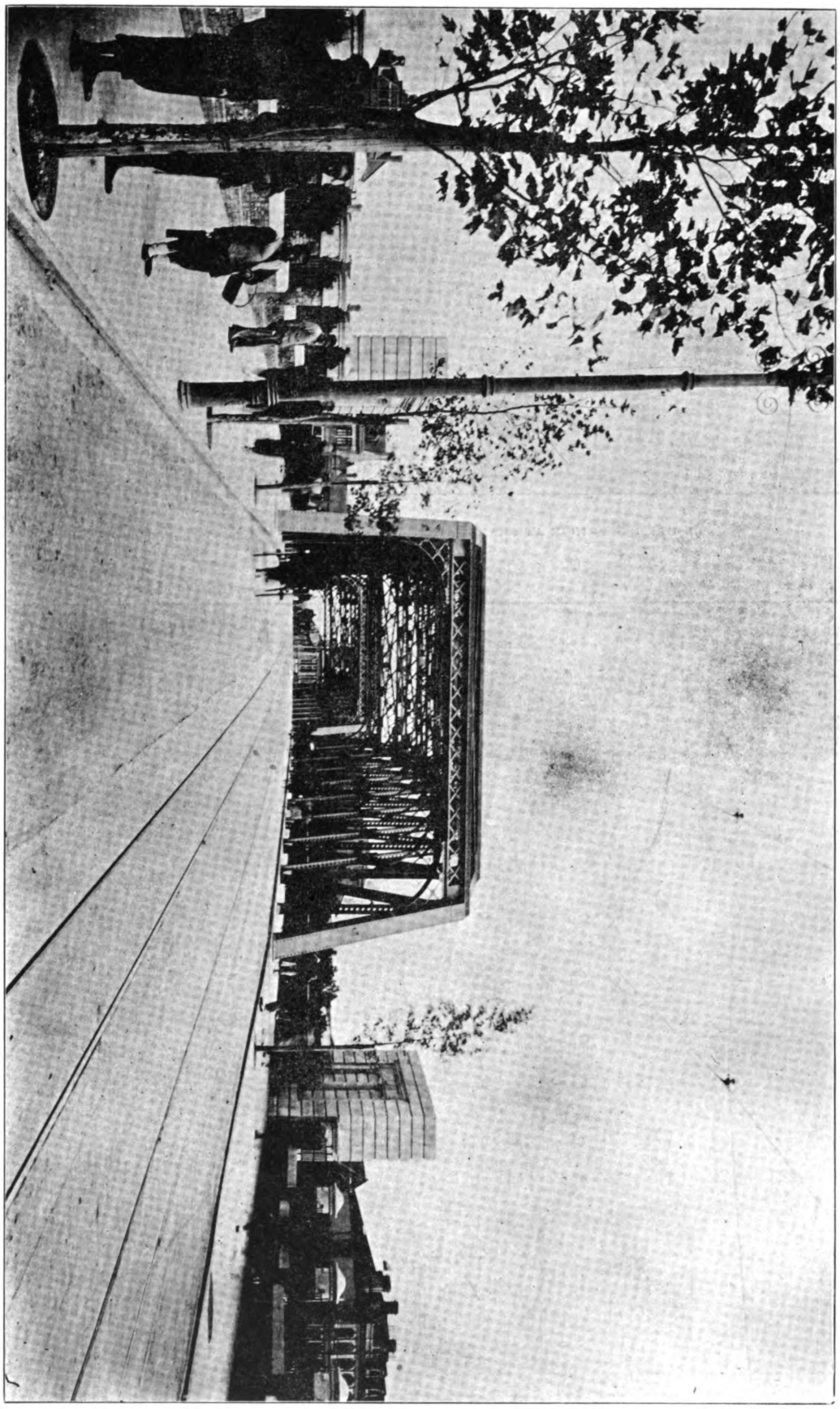
The life of such a pavement may be calculated at 16 years if proper care is exercised in the selection of the blocks and the manner of laying. This is an item that should be carefully considered by the Shanghai authorities, and compared with the cost of macadam especially on the main thoroughfares. While public information appears to be lacking as to the exact cost of construction and maintenance of the Shanghai macadam roads, the average annual cost of maintenance on such roads subjected to even light traffic is about 30% of the original cost, and in cases of extra heavy city traffic the annual maintenance charge has cost 30% more than the original cost of building, or in other words it has to be renewed every nine months.

As Mr. Mayne forcibly remarks in his Annual Report, "the day of the macadam with its continual maintenance is over in such streets as the Bund, Nanking Road, etc." The Council and ratepayers may stave it off from year to year but they have to come to it to the end, or else wilfully permit and acquiesce in the waste of public moneys for the upkeep of macadam roads which bear the burden of traffic in the heart of the Settlement. Owing to the use of inferior Tasmanian wood blocks, the wood pavements in Manila practically gave out after only three and one-half years of use, and the reputation of all Australian woods suffered as a consequence. With proper specification and careful inspection, however, this would not occur again, and Shanghai can profit from Manila's example.

The budget for 1909 calls for an estimated outlay of Tls. 262,712 for ordinary road expenses, and Tls. 250,000 for the purchase of land for new roads and improvements. In this item the sum of Tls. 70,000 is set aside for block paving Nanking Road between Kiangse and Chekiang Roads. This is a step in the right direction, as although the first cost is heavy, the wear and tear is less than any other style of road, and maintenance expenses are reduced to a minimum. The Department operates its own stone quarry at Ping Chiao, situated about 150 miles from Shanghai and which supplied about 50,000 tons of material in 1908. As a result of negotiations with the French Municipal Council to supply them with stone, the quarry plant was recently increased by addition of a 24"×16" Baxter crusher having a capacity of 16 tons per hour. There is another 16"×9" Baxter and a "Gates" crusher also in operation at the quarry.

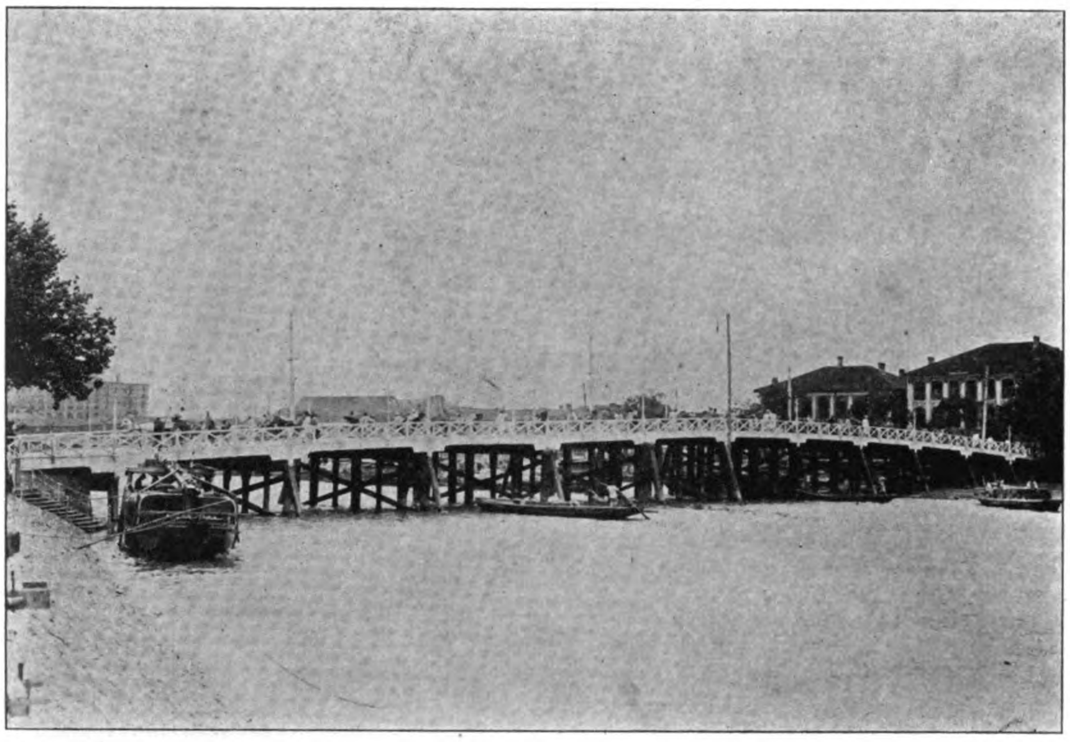
Concrete ware.—The department also operates its own concrete ware factory, inaugurated in 1890 to reduce the high cost of drainage works previously constructed with stoneware pipes from England, and also with a view to discourage the construction of private brick drains which became insanitary by reason of the permeability of the soft local brick. The plant is equipped with pipe and block making machinery, and last year turned out 38,994 pieces of which nearly half were made by machinery. The bulk of the work turned out are sewer and drainage pipes and fittings, while concrete and reinforced concrete steps, sills, lintels, copings, etc., are made for various municipal buildings under course of erection. All cement is tested at the municipal laboratory. The engineer points out in his report that in the various private yards no reliable tests are made, and without any idea of discouraging reputable local enterprises, warns the public against the use of concrete ware without first investigating the methods of fabrication and class of cement employed. He further states that with few exceptions Chinese contractors are woefully ignorant of the nature and properties of Portland Cement. The many firms which have recently been established for the manufacture of concrete building materials is an indication of the growing sentiment in favor of this form of construction. The temptation of the unscrupulous contractor or manufacturer of cement ware to use inferior quality or insufficient quantity of cement in his work is a strong one, as the average purchaser is incapable of distinguishing the difference. The time must come, when official inspection of the concrete ware in buildings will be as necessary as other time-honored building inspections. The employment of reinforced concrete beams, pillars, arches, floors, etc., in our public buildings, clubs and hotels, has already reached a stage which call for rigid inspection under the building regulations. While reputable architects and builders can be relied upon to honestly carry out work of this nature, there is no protection for the public against the unskilled or avaricious contractor who through ignorance or cupidity imperils life.

That the Shanghai authorities are keenly alive to this danger is evidenced by a scheme which has received official sanction for the registration of architects. An advisory committee, composed of several reputable architects and of which the Municipal Engineer is Chairman, enquires into and reports on the qualifications of the applicants, and on its decision the Council grants the authority for him to engage in work or otherwise.



SHANGHAI GARDEN BRIDGE SOUTH APPROACH.

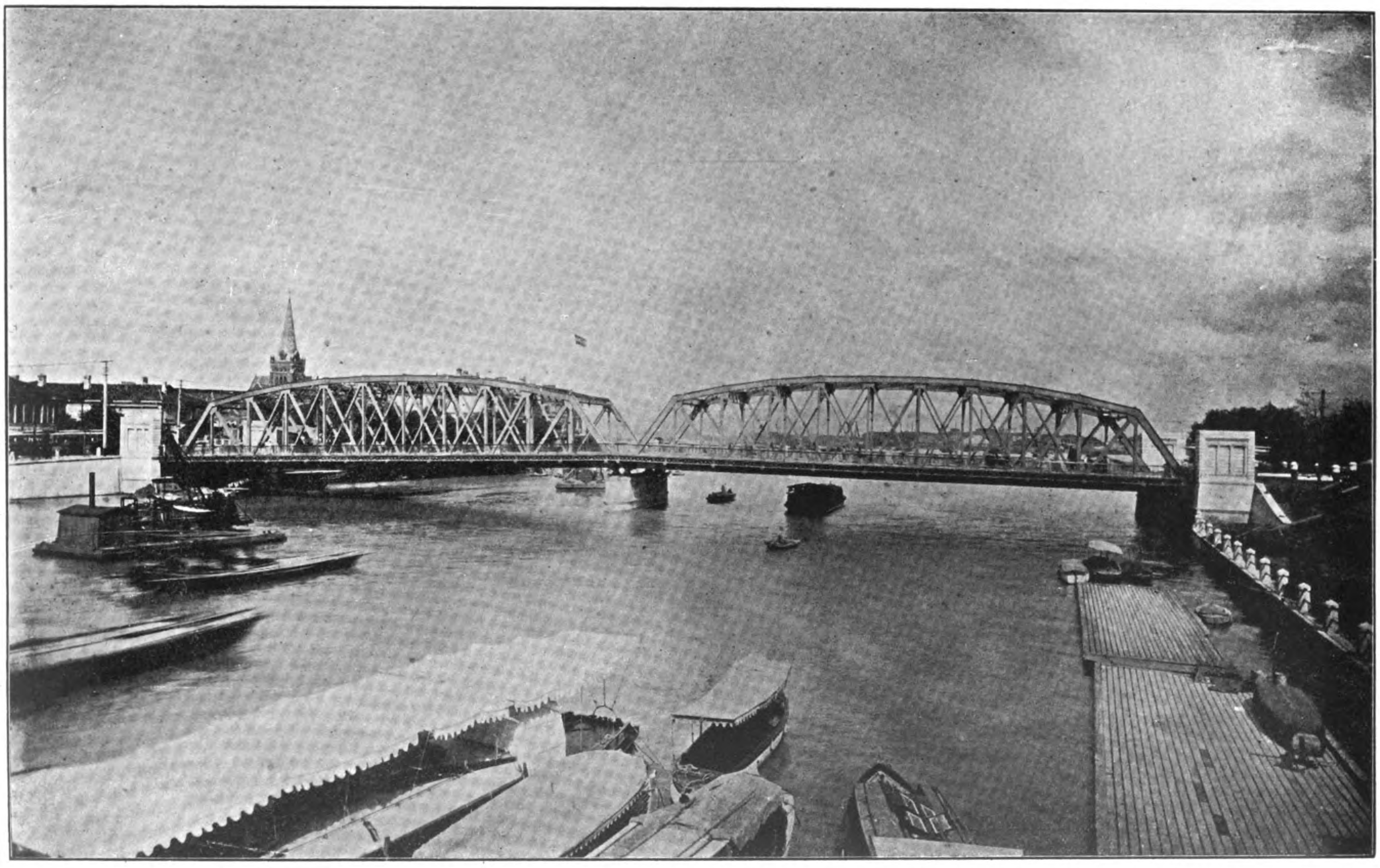
Built by *The Cleveland Bridge & Engineering Co., Ld.*, of Darlington, England. Erected by *Howarth, Erskine, Ld.*, of Singapore. A. H. Collinson, M. I. C. E., Consulting Engineer. C. Mayne, C. E., Municipal Engineer.



OLD GARDEN BRIDGE AT SHANGHAI.

Convict Labor.—Last year the Department to a large extent successfully employed convict labor on several important public works, and arrangements are being made to employ this labor in the concrete ware factory. An average number of 344 convicts has been daily employed, and the Engineer reports their conduct and diligence while at work as good, and the quality of work performed compares favorably with that done by local contractors. A length of 6,900 feet of road metalling was completed in 23 days, and a wall 1,310 feet long by 7 feet high was completed in two months. It is proposed to utilize convict labor to a greater extent in the future, which of course will result in a considerable saving in expenditure.

Bridges.—The number of bridges under control of the P.W.D. is 67. The majority of these are wooden structures across the numerous creeks and drains throughout the settlement. As far as possible the smaller bridges are being replaced by concrete arches and culverts and the larger and more important where the traffic is heaviest will be of steel. The Soochow creek, which divides the settlement, is a busy artery of junk and launch traffic, and the old wooden structures bridging the stream receive considerable damage from these craft. The traffic conditions on the bridges are rapidly changing as the settlement grows, and sooner or later these wooden structures will have to be replaced by steel. A good start has been made with the Garden and Chekiang Road bridges, which were fully described in our April issue. The Szechuen and Kiangse Road bridges are recommended for reconstruction in steel, but were not provided for in this



Erected by *Howarth, Erskine, Ld.*,
A. H. Collinson, M. I. C. E., Consulting Engineer.

GARDEN BRIDGE

Built by *Cleveland Bridge & Engineering Co., Ld.*
Darlington, England.
C. Mayne, C. E., Municipal Engineer.

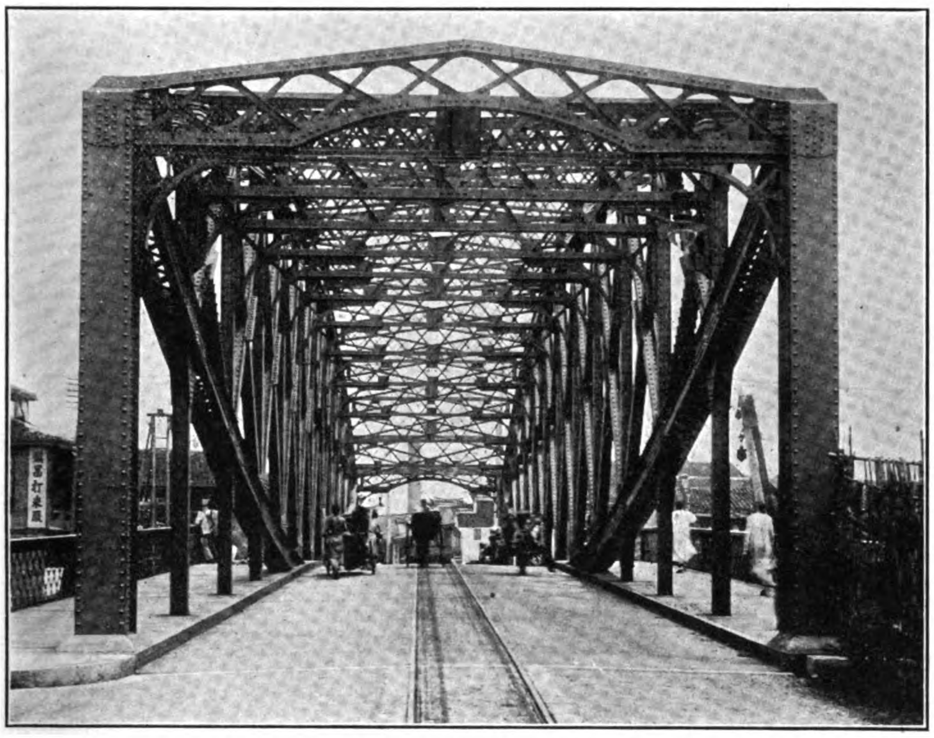
year's budget. Another scheme for which drawings and estimates have been prepared is the reconstruction of the Bund Bridge over the Yang King Pang creek, separating the International from the French Concession. At present the great traffic of the wide Bund is compressed in crossing this narrow bridge and the plan is to widen it to the same width as the Bund and make one broad and continuous thoroughfare.

The foreshore bunding constitutes an important item in the work of the Engineers' Department, in addition to dredging the Soochow creek and other drainage canals. A standard design of concrete bunding has been employed on the Soochow creek, but timber is still employed on account of lower cost.

Drainage.—The drainage system of Shanghai is confined to small outlets for the surface water.

Shanghai, like Manila and other low lying ports, presents many difficulties for the construction of a gravity sewer system. The Settlement, located on the Whangpoo River, 14 miles above its junction with the Yangtsze, has a normal rise and fall of the tide of about 11 feet. The water is fresh and highly charged with suspended matter, mostly of an alluvial nature. The nature of the country for miles around is very flat, consisting of a rich alluvial deposit, carried down by the Yangtsze. The general ground level of the Settlement is only about 2 feet above high water level. The city and surrounding country is intersected by numerous tidal creeks, which are utilized as far as possible as sewer outlets. From observations extending over a period of 20 years the mean average rainfall has been 43.60 inches and temperature Fh. 59.2 degrees.

OLD CHEKIANG ROAD BRIDGE.



END VIEW OF THE CHEKIANG ROAD BRIDGE, SHANGHAI, BUILT BY CLEVELAND BRIDGE & ENGINEERING CO. LTD., ERECTED BY MESSRS. HOWARTH, ERSKINE, LTD.

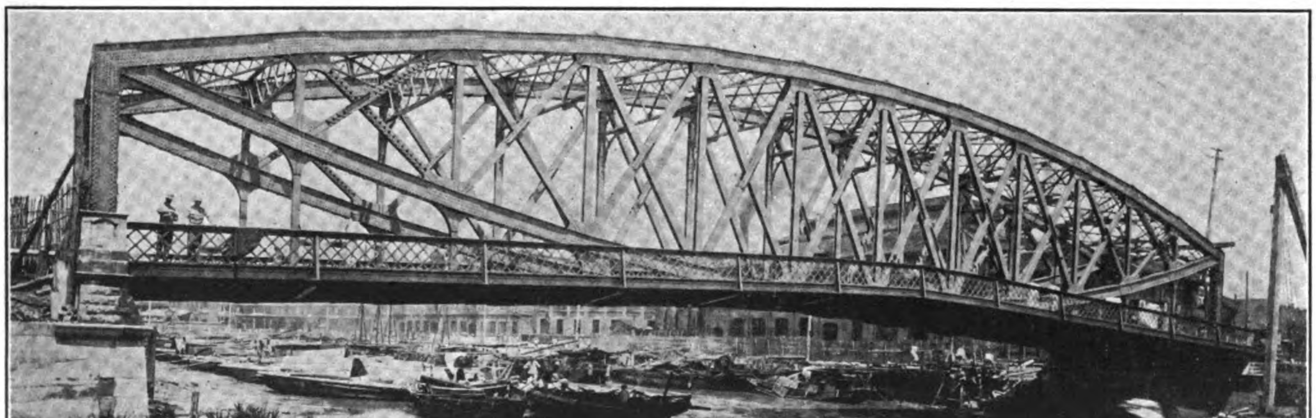
The solution of economical disposal of the ordure and night soil is found in the preference of the Chinese farmer for this class of fertilizer; the Council derives a revenue of Tls. 47,770 for the privilege of hauling it away, which is let to a native contractor. The latter provides all labor and covered receptacles for the collection and is under bond to convey it in covered boats to the rural districts without causing nuisance to the Settlement. The system works well and all the night soil is removed daily before 9 a. m.

Water closets are prohibited under the local regulations unless they empty into private cesspools which can be properly cleansed at regular intervals, but urinals and slop sinks are connected with the drainage sewers.

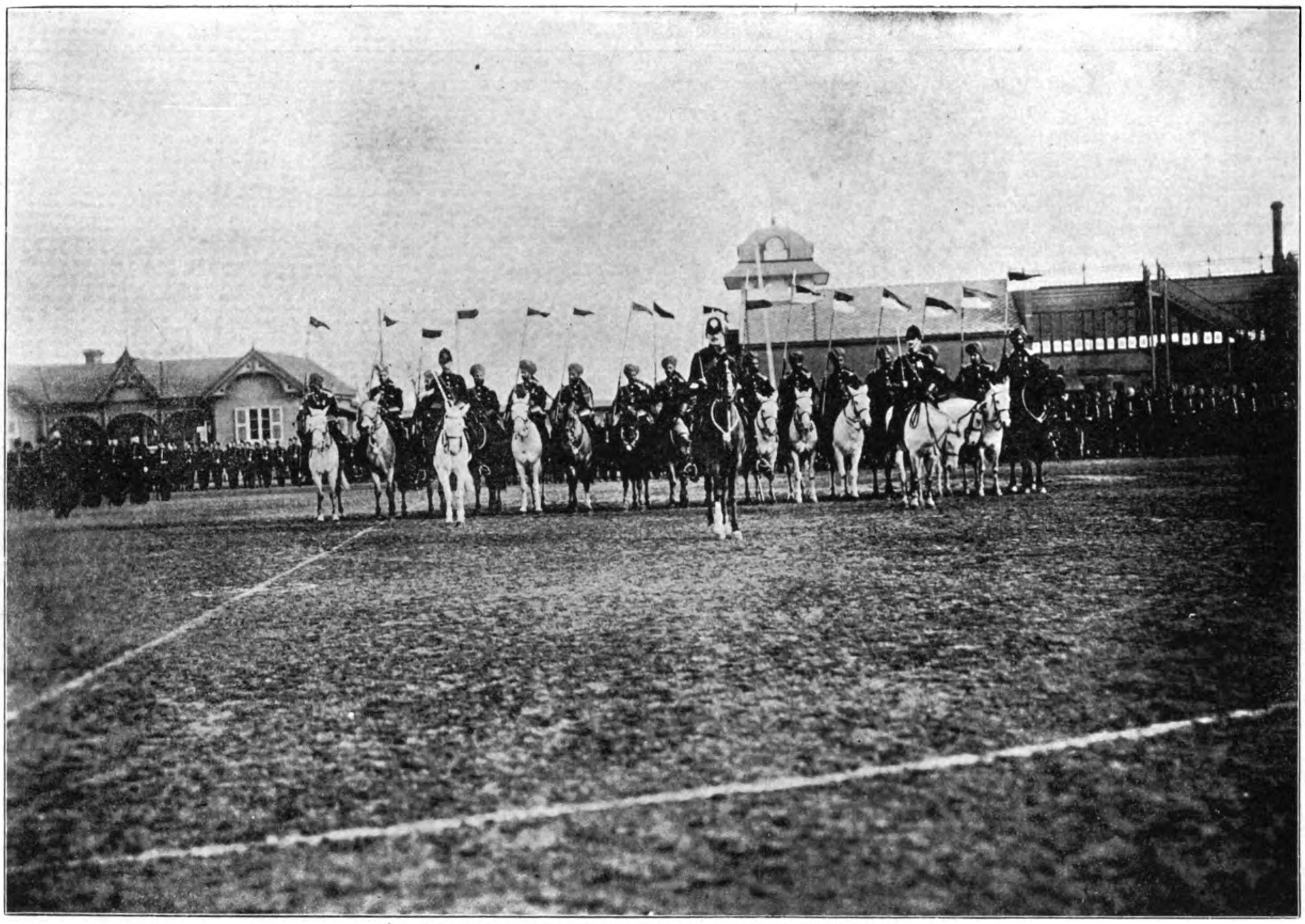
Owing to the numerous outlets provided by the many creeks, there are no large main fall sewers, the largest being 3'×2'. Tidal flap valves are not used and the tide is free to circulate through the sewers. Whenever possible dead ends are avoided in order that the tidal water may circulate freely through the various systems. As the majority of the roads are macadamized, a large amount of detritus is washed into the gullies which have to be cleaned out from time to time.

Rigid supervision is maintained over all private drainage works, and no drains are allowed to be covered until they have been inspected and approved by the Council's Inspectors.

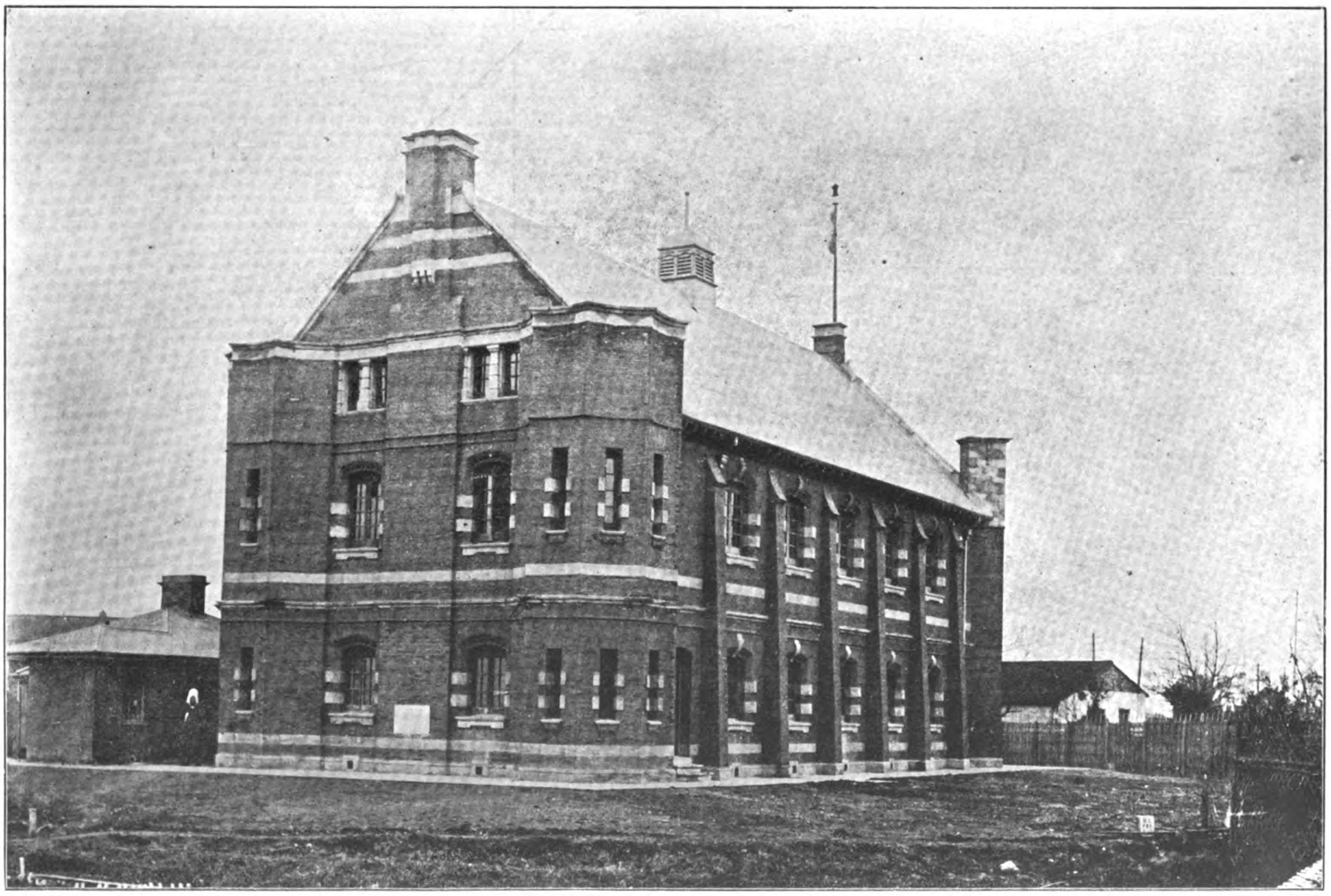
Owing to the difficulty of obtaining stoneware pipes at a reasonable cost, the Council in 1891



SIDE VIEW OF THE CHEKIANG ROAD BRIDGE, SHANGHAI, BUILT BY CLEVELAND BRIDGE & ENGINEERING CO., LTD., ERECTED BY MESSRS. HOWARTH, ERSKINE, LTD.



SHANGHAI MUNICIPAL POLICE.—INDIAN TROOPERS.



SIKH GURDAWRA, SHANGHAI.

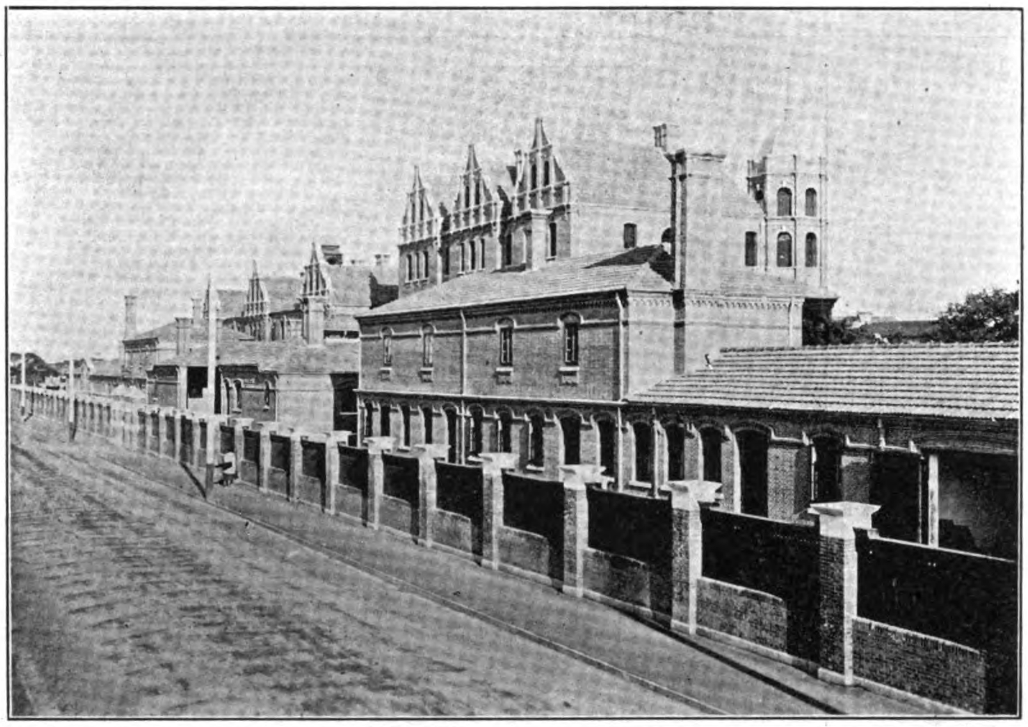
decided to manufacture its own pipes of concrete, and these pipes are used for all municipal work, and also supplied to private individuals. Within the last three or four years, all pipes up to 12" diameter have been made by machine, and compare favorably for porosity and durability with glazed stoneware pipes. They are made of the usual pattern in 2-feet lengths with spigot and socket joints. Other pipes of the following standard sizes are also manufactured:

Circular, 2' and 3' diameter.
Oval, 2'-3"×1'-6" and 3'×2'.

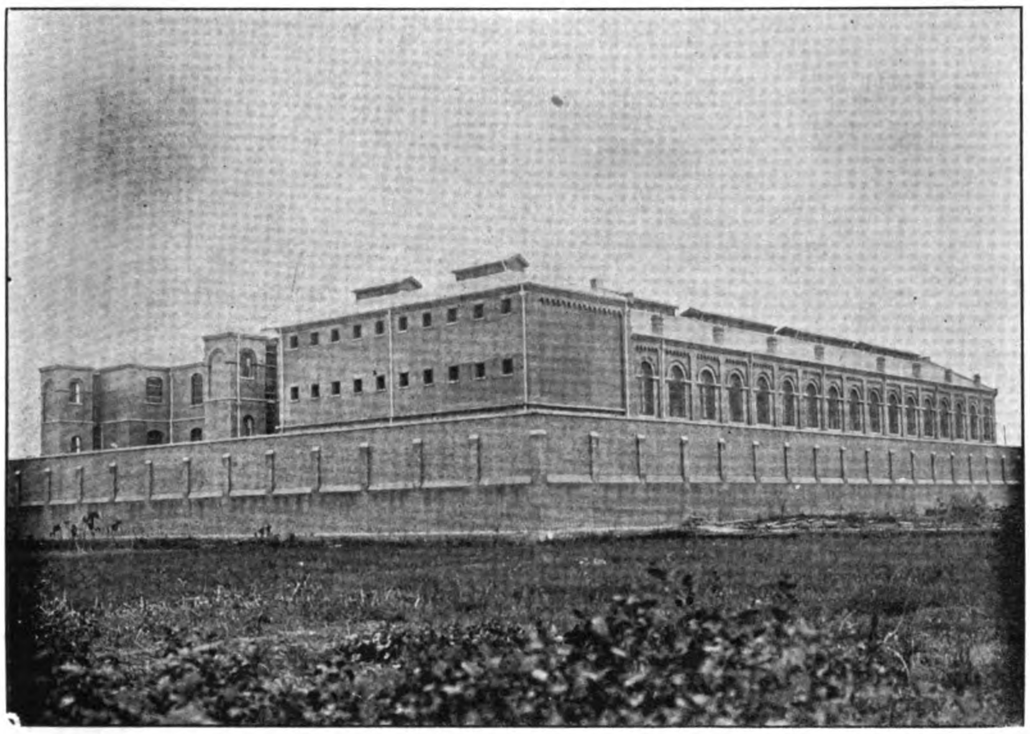
These are all reinforced by iron rods. Street gullies of the usual pot form are also made.

Wherever new roads are made through country districts, where the rateable value does not justify the laying of a sewer, the drainage is affected by means of a ditch, 10 feet wide on the top and 6 feet deep, cut on one side of the road. When such districts get built up, these ditches are filled in and sewers laid in the ordinary manner.

Buildings.—The public buildings of Shanghai, under control of the Municipality include the



SHANGHAI MUNICIPAL HOSPITAL, (NORTH FRONT)



SHANGHAI MUNICIPAL GAOL.

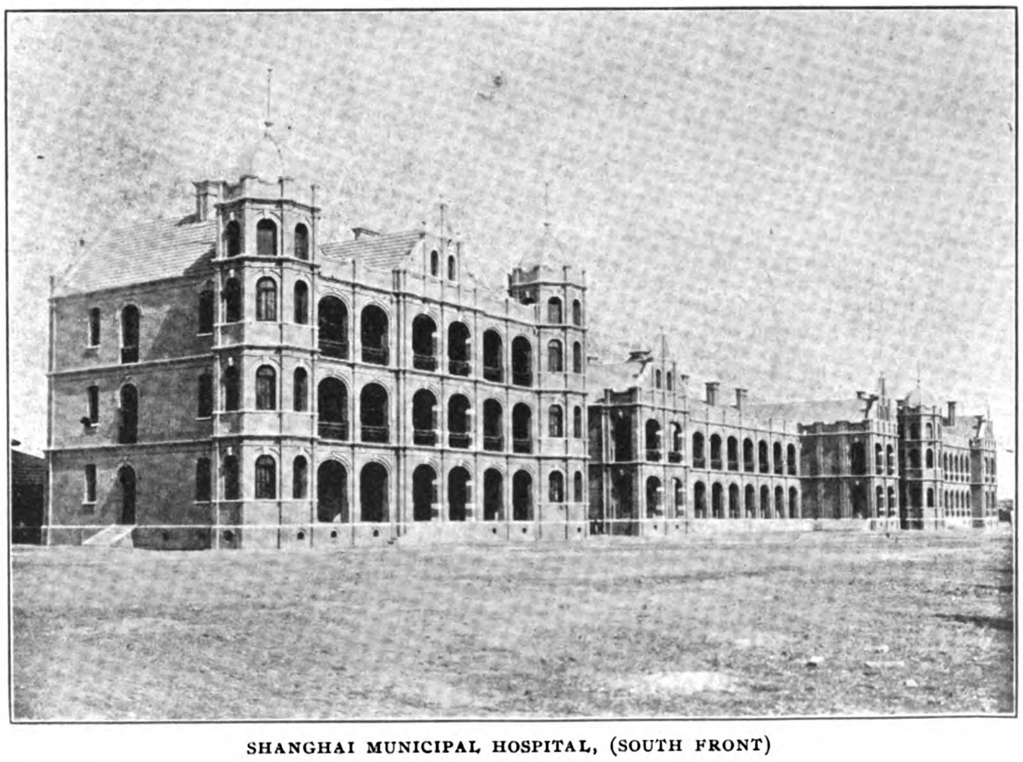
Town Hall, erected at a cost of Tls. 132,000 Public Markets Tls. 134,000, Central Police Station Tls. 83,000, Louza Police Station Tls. 42,000, Bubbling Well Police Station Tls. 27,000, Sinza Police Station Tls. 40,000, Gaol Tls. 178,000, Fire Station Tls. 28,000, Victoria Nursing Home Tls. 114,000, Isolation Hospital Tls. 163,000, Isolation Hospital for Chinese Tls. 22,000, Public Swimming Bath, Tls. 17,000, Slaughter Houses Tls. 19,000, Cattle Sheds Tls. 20,000, Crematorium Tls. 51,000, Chinese Public School Tls. 54,000, Electricity works Buildings Tls. 188,000.

New Police Stations have been erected during the past year, and several new buildings are projected for the current year in which will be included a new electrical plant at the Point.

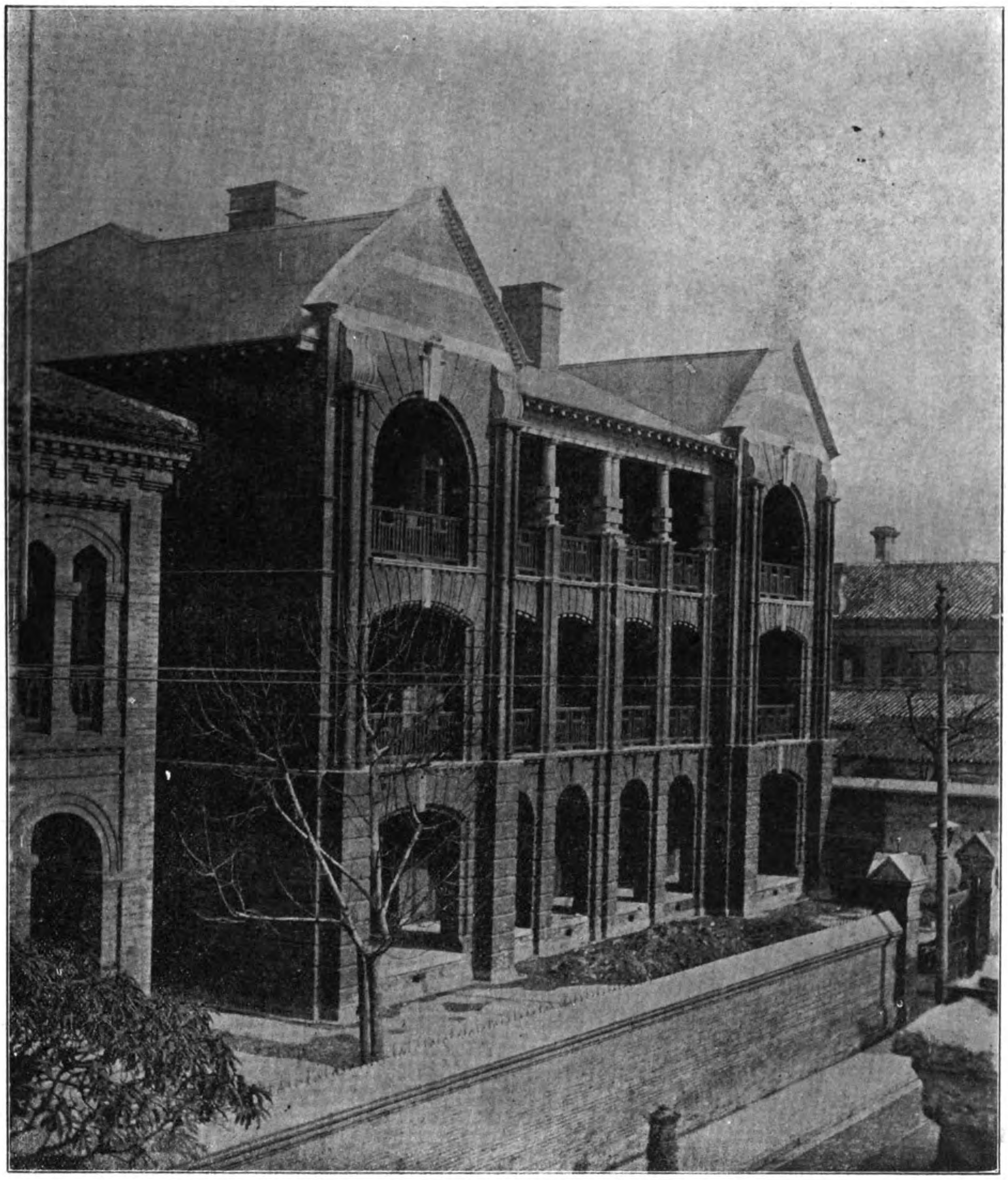
Many new private buildings are in course of erection throughout the city which will greatly add to its attractiveness, amongst which may be mentioned the Burlington Hotel, Jardine Matheson & Co.'s offices on Peking Road, China Mutual Life Insurance Co.'s new premises on Canton Road, British American Tobacco Co. on Soochow Road, Arnhold, Karberg & Co.'s office building of reinforced concrete construction, Palace Hotel, Ningpo Commercial Bank, Branch of the Hongkong and Shanghai Bank in Hongkew, the Telephone Building and others. Some of the principal buildings under construction at present are the New Astor House Hotel, the Ta Ching Government Bank and the new Shanghai Club. Over three thousand new buildings were erected last year of which the greater proportion 2,720 were native and 105 foreign buildings.

The inspection of boilers is also under the P. W. D., a total of 172 being inspected during the year.

Water Supply.—The water supply of the city is derived from the Shanghai Waterworks Co., Ltd., who supplied the Municipality with over 115,000,000 gallons during the year. The city holds 1,950 shares of the water company out of a total of 16,350, producing a revenue in 1907 of £3,310, and an estimated revenue of £5,000 for the present year.



SHANGHAI MUNICIPAL HOSPITAL, (SOUTH FRONT)



HONGKEW POLICE STATION.—SHANGHAI.

The Waterworks company is a British Corporation registered in London, and established in 1881, with an original capital of £100,000. This has been increased from time to time until it is now £327,000 divided into 16,350 shares of £20 each fully paid up. The company has a reserve of Tls. 190,000, and last year paid a dividend of 30 shillings per share. The financial report of the company was published in full in the April issue of the FAR EASTERN REVIEW.

The water is taken from the Whangpoo River at high tide, by gravitation and pumping, whence it passes into large settling reservoirs having an aggregate capacity of 20,000,000 gallons. After proper settling the water is then pumped into the service reservoirs, which are raised about 10 feet, and from there it flows by gravity to the filter beds. There are 16 filter beds. The water then flows into the two pure water covered-in reservoirs from whence it is distributed to service mains for distribution.

The pumping plant consists of three horizontal compound, and one differential pumping engine, the last from Messrs. Hathorn, Davey & Co., while a contract has recently been placed with Messrs. Glenfield, Kennedy Co., Ltd., for a new pumping engine with a capacity of 300,000 gallons per hour. The station has its own electrical plant. The four boilers are of the Lancashire type.

The water is pumped through two mains of 20″ and 25″ to water towers, one, the oldest located in the Kiangse Road having a height of 100 feet, and the second and newest of 125 feet in height located in the Sinza district. The towers regulate the pressure, and have a combined capacity of about 300,000 gallons.

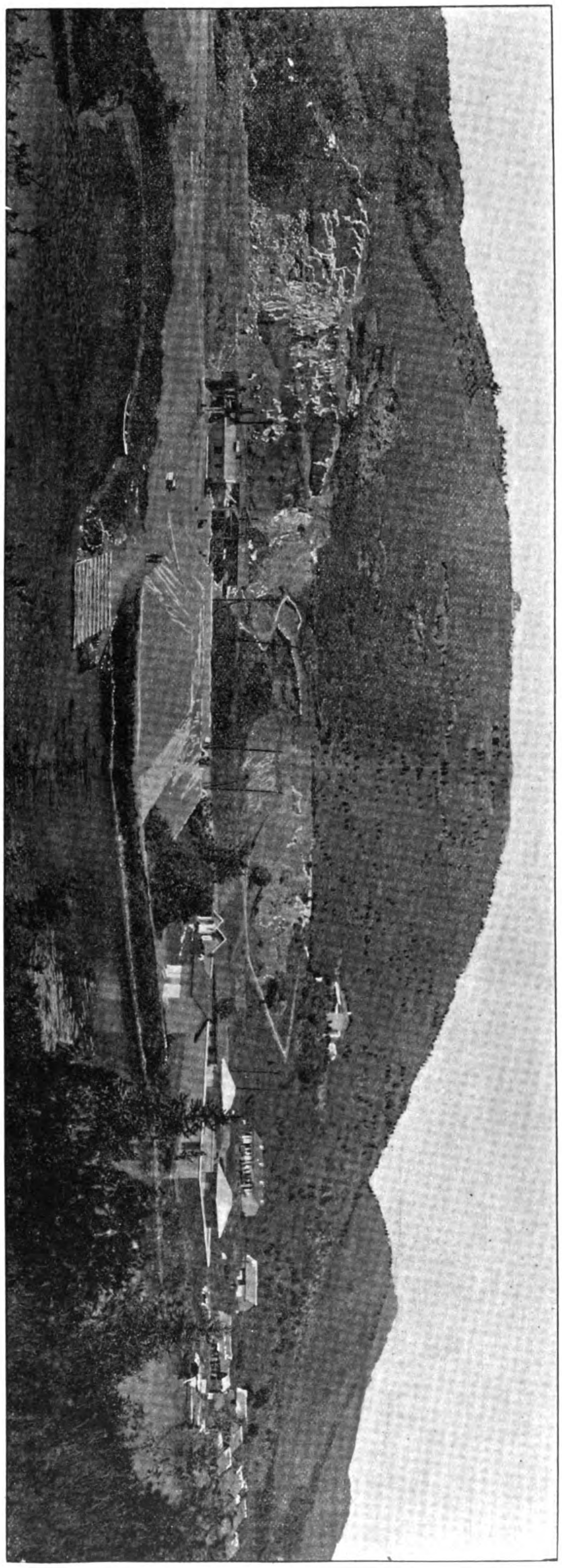
The charge for domestic purposes is 4 per cent on the annual rental to foreigners and 5 per cent for natives. For industrial purposes the charges are 40 cents (Mexican) per 1,000 gallons for quantities from 10,000 to 200,000 gallons, 35 cents per M. up to 300,000 gallons, and 30 cents per M. for greater quantities.

The present consumption of the Settlement averages about 7,000,000 gallons per day, and the capacity of the plant is 16,750,000 gallons; with the addition of the new pumping engine this will be increased to 24,000,000 gallons, or an ample reserve power to meet all the demands of the rapidly growing settlement. There are over 80 miles of mains, and about 700 fire hydrants. The financial condition of the company is excellent, their shares being quoted on the Shanghai Exchange at Tls. 437, or over 150 per cent above par.

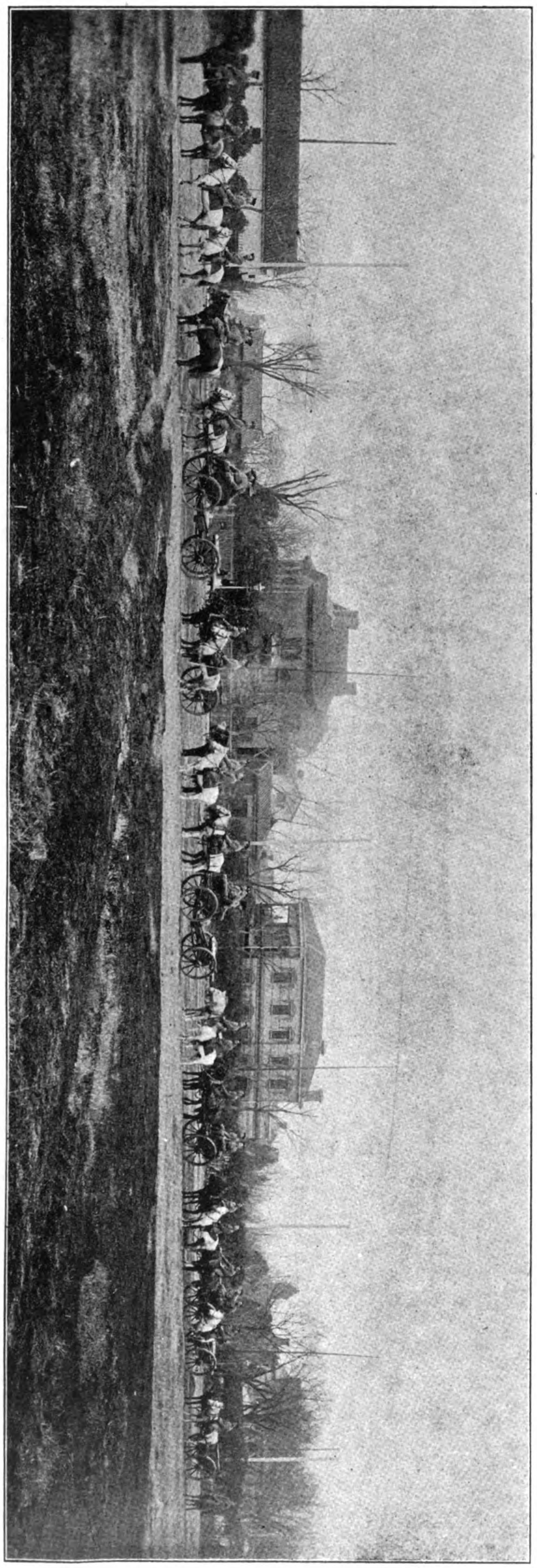
There are several existing bond issues aggregating Tls. 750,000 which it is proposed to redeem by a new issue of Tls. 1,500,000 in instalments as required.

The number of foreign houses supplied with water is 1,905 and native houses 40,869 in addition to which must be added the supply to the Municipal Council, mills, factories, etc. The great waste of water by the natives had led the Company to consider the matter of charging by quantity and affixing a meter to each house.

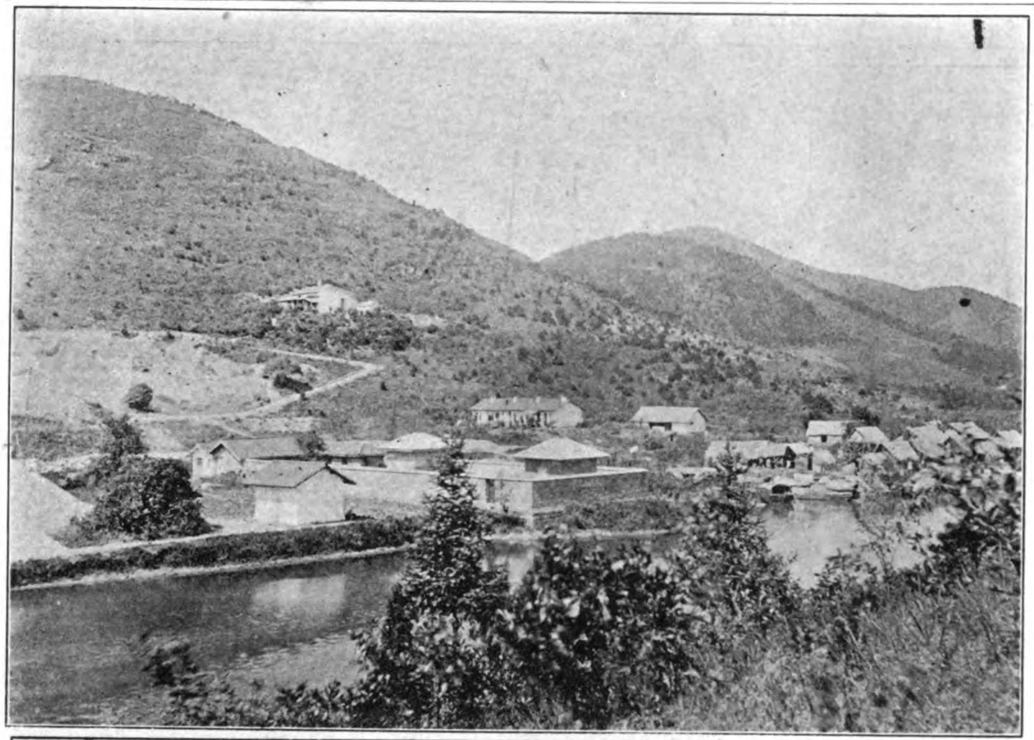
In addition to the ordinary pipe fitting business for connecting the mains to houses, the company has recently established an up to date plumbing branch. The many new foreign edifices, both office buildings and dwellings, have been erected with all modern conveniences. With the sole exception of the closet, nearly all

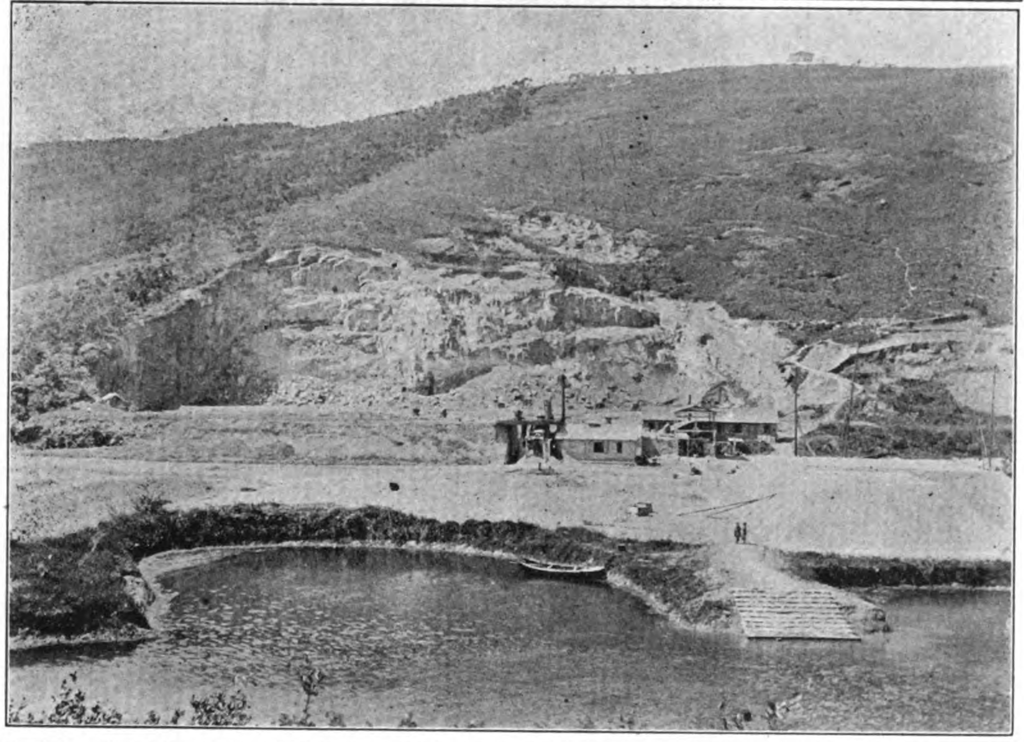


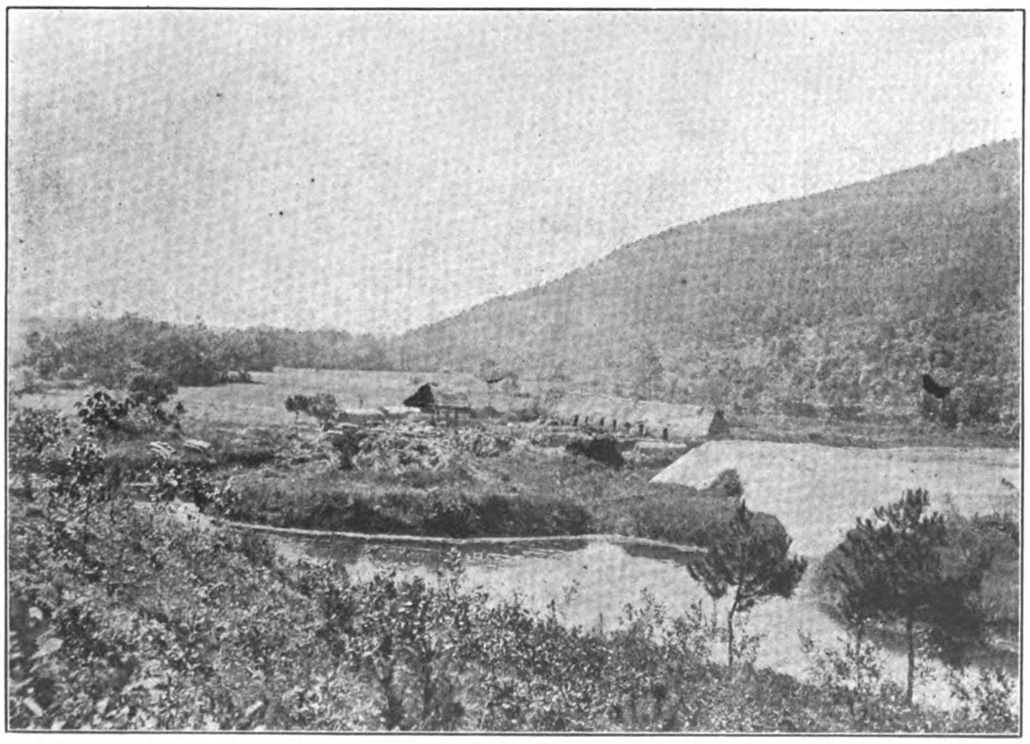
GENERAL VIEW OF THE PINGCHIAO QUARRY OF THE SHANGHAI PUBLIC WORKS DEPARTMENT.



SHANGHAI VOLUNTEER ARTILLERY.







THREE VIEWS OF THE PINGCHIAO QUARRY.

new houses are being fitted with porcelain bath tubs, wash stands, sinks, and hot water boilers, and where houses have their own properly constituted cesspools, the flush closets are also installed. All the older foreign built and all the native built houses were formerly fitted with water connections only, and each tenant had to supply his own bath tub sink, stove, etc. The demand for something better than the Soochow bath tub and sanitary fittings has, however, opened the way for a profitable business in modern plumbing and sanitary fixtures. The Waterworks and the firm of Gordon & Co. carry large stocks of material, and are prepared to execute any work of this nature.

The quality of the water is excellent, as may be seen from the following analysis by the Health Officer:

Sample received, 25th November, 1905.
Report sent out, 30th November, 1905.
Sample.—Shanghai Waterworks Co.'s water.
Physical Characters.—Pale yellowish green color with slight opacity.

	Parts per 10,000
Solid matters in Solution	15.0
(a) Volatile	7.0
(b) Fixed	8.0
Appearance on ignition, slight charring.	
Total hardness	11.0
(a) Temporary	5.0
(b) Permanent	6.0
Chlorine	2.7
Nitrogen as Nitrates	0.03
Saline Ammonia	0.02
Albuminoid Ammonia	0.015
Poisonous Metals	Nil.
Nitrates	Nil.
Phosphates	Nil.
Sulphates	Traces.

Bacteriological Examination.—Nutrient gelatine plates incubated at 23° C showed 200 micro-organisms per cubic centimetre. The ratio of liquefying to non-liquefying organisms was one to ten.

Agar plates incubated at blood heat yielded 40 microbes per cubic centimetre.

Report on Analysis.—A sample of well filtered water showing a high degree of chemical and bacteriological purity.

The French Municipality have their own Waterworks completed in 1902, at a cost of Tls. 350,000. The present supply is not equal to the demand, and the plant located at Tunkadoo will be enlarged, and another water tower erected. The water is taken from the Whangpoo River, and is settled and filtered before delivery to the tower. The waterworks were taken over from the French Municipal authorities last year by the French Tramways & Lighting Co. The charge per cubic meter is Tls. 07 to ordinary consumers.

There is also a native City Waterworks with plant at Kiangnan for supplying the Chinese City.

Gas.—The public lighting of Shanghai is controlled by the Municipal authorities, but the older established gas company still does a large and increasing business despite this severe competition. Gas was first introduced in the settlement in 1865, and the original plant located in Hankow Road, but shortly afterwards the works were removed to their present location in Tibet Road. The plant is equipped with the best modern machinery with a capacity of 3,000,000 cubic feet per day, and supplied nearly 500,000,000 feet of gas in 1907, while in 1908 the consumption was increased some 30,000,000 feet, distributed to over 8,000 consumers.

The consumption has been trebled in eight years, and the growth of the settlement must again call for further increase making the works one of the largest outside of Europe, or America, and at the same time one of the most profitable.

The charges to consumers have steadily declined until at present it is about $1.70 Mexican silver per M feet, or approximately 70 gold cents. The Municipality receives a discount of 25% on the cost of public lighting, amounting

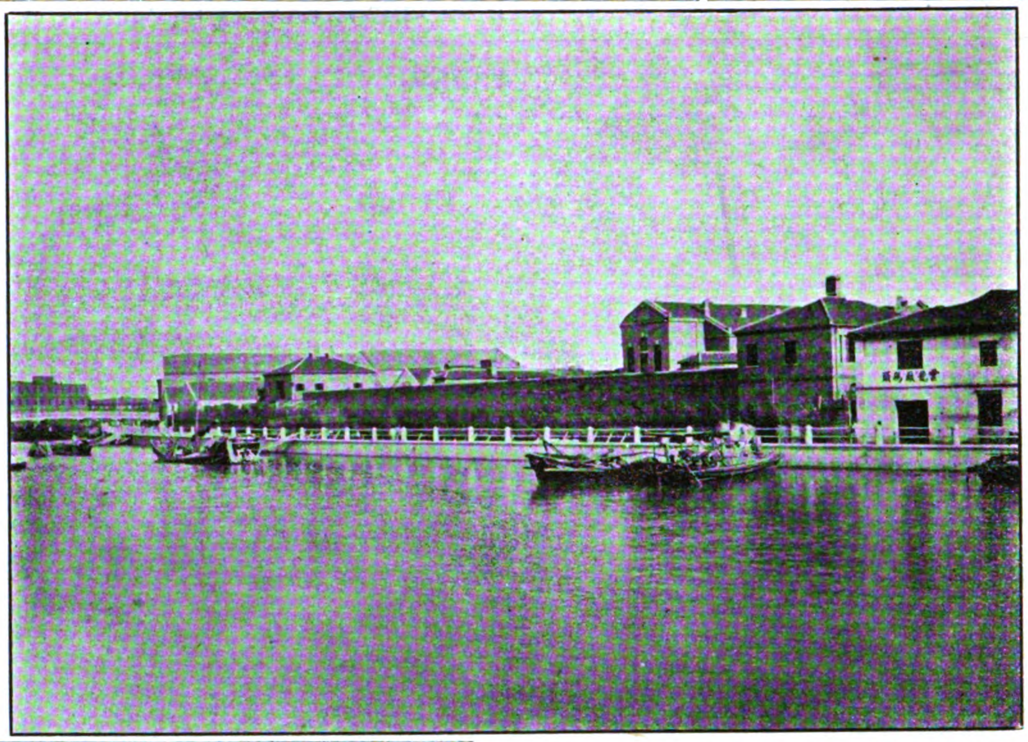
last year to Tls. 6,000. At the present prices of coal delivered in Shanghai, this rate is remarkably low compared with charges in other parts of the world, but even at this low rate, a handsome profit is made, and the company is in a flourishing financial condition.

In 1901 the Company was registered under the laws of Hongkong with a capital of Tls. 400,000, which was subsequently increased to Tls. 800,000 and again to Tls. 1,200,000 divided into 24,000 shares of Tls. 50 each all paid up. The last interim dividend declared was 6% or a total of 13% for the year. The shares are listed on the market at Tls. 115 bid, with no sellers, or 130% above par.

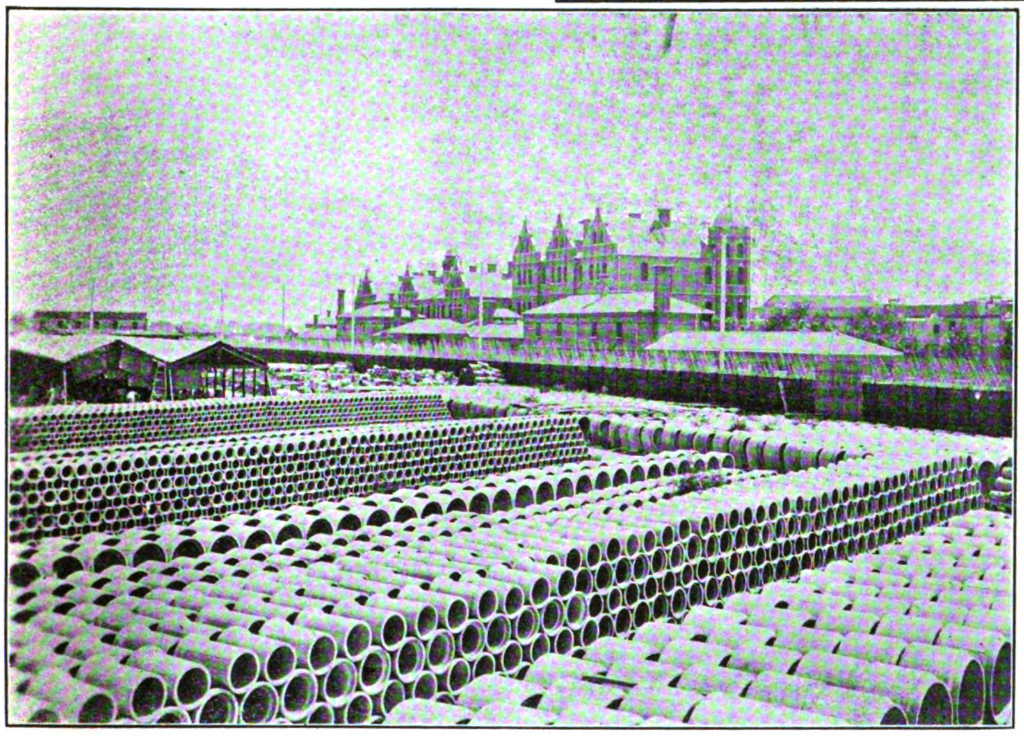
The last Annual Report of the Company was published in full in the April issue of the FAR EASTERN REVIEW.

The Company have issued three loans and it is now proposed to create a new loan of Tls. 1,250,000 of which Tls. 400,000 are to be applied to the redemption of outstanding issues and the sum of Tls. 400,000 to be issued as required. There are 113 gas engines in operation in the Settlement. The sales residuals, coke, tar, pitch and sulphate of ammonia are affected with a good profit.

The company act as agents for the well known Crossby gas engine, and in addition carry a full line of gas and electroliers, Welsbach lights



CONCRETE BUNDING ON SOOCHOW CREEK.



CONCRETE WARE FACTORY.

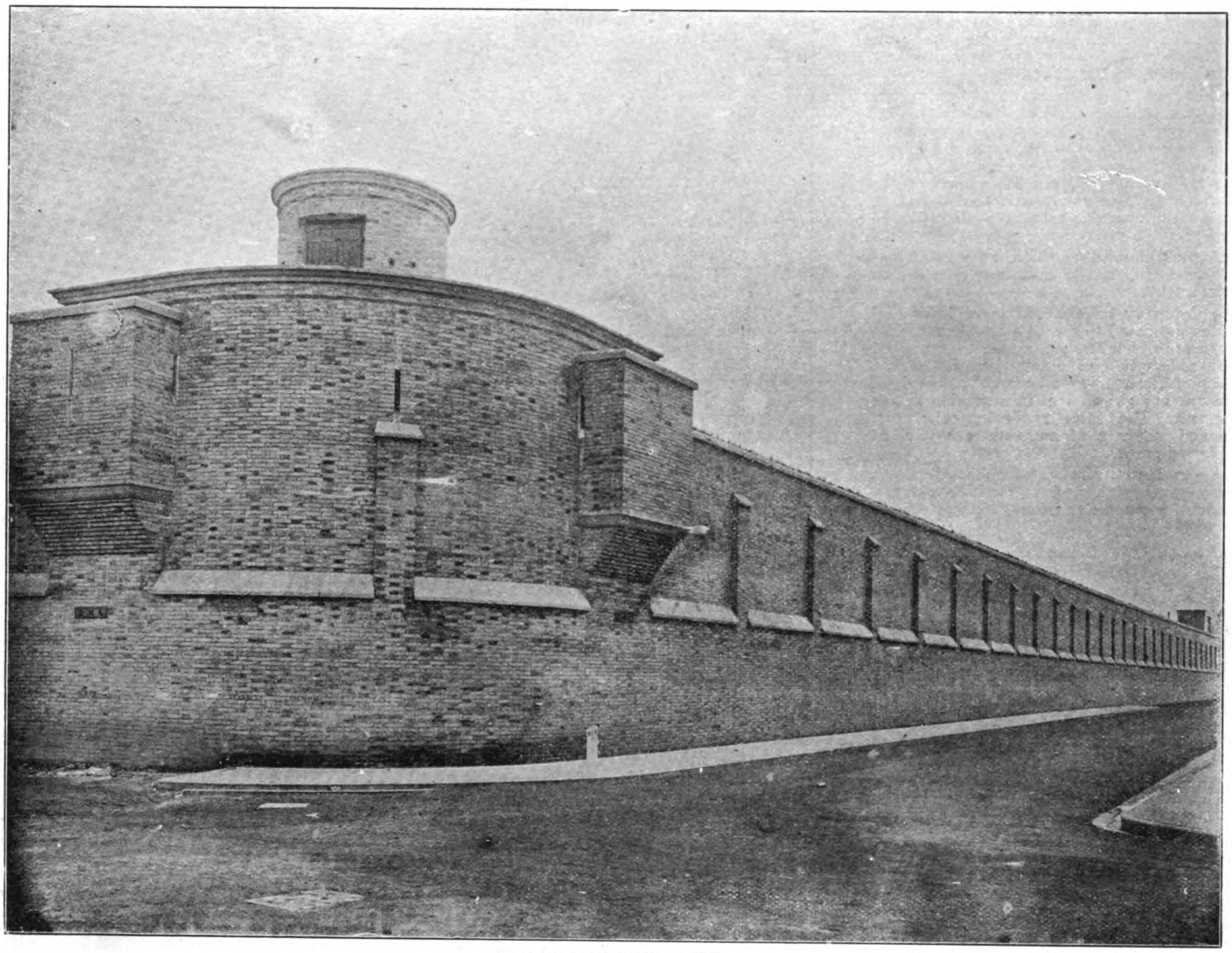
and burners, and other requisites for the use of gas.

Telephones.—The telephone service in Shanghai is controlled by the Shanghai Mutual Telephone Co., Ltd., a British corporation registered under the Hongkong Ordinances. The service was carried on from 1881 to 1898 by the China and Japan Telephone Company, working under a charter revocable at 12 months' notice. The arrangement was so unsatisfactory that the Company applied for a definite extension of the Charter for a term of years, which led the Municipal Council to call for public tenders to supply the settlement with a service that would fulfill the requirements of the growing port. The privilege was granted to a new company formed largely of local stockholders, who offered to give a good up-to-date service, without any special franchise, relying on the good faith of the community to support their efforts. On this basis the Shanghai Mutual Telephone Co. was organized with a capital of Tls. 100,000 and compromised to complete their installation by April 1901, but several months before this, they were ready for operation and in another year the plant had reached its capacity of 600 subscribers. The capital was then increased to Tls. 350,000 to provide for an enlargement of the exchange to 2,500 subscribers, and in 1905 it was again necessary to extend the service for 5,000 subscribers.

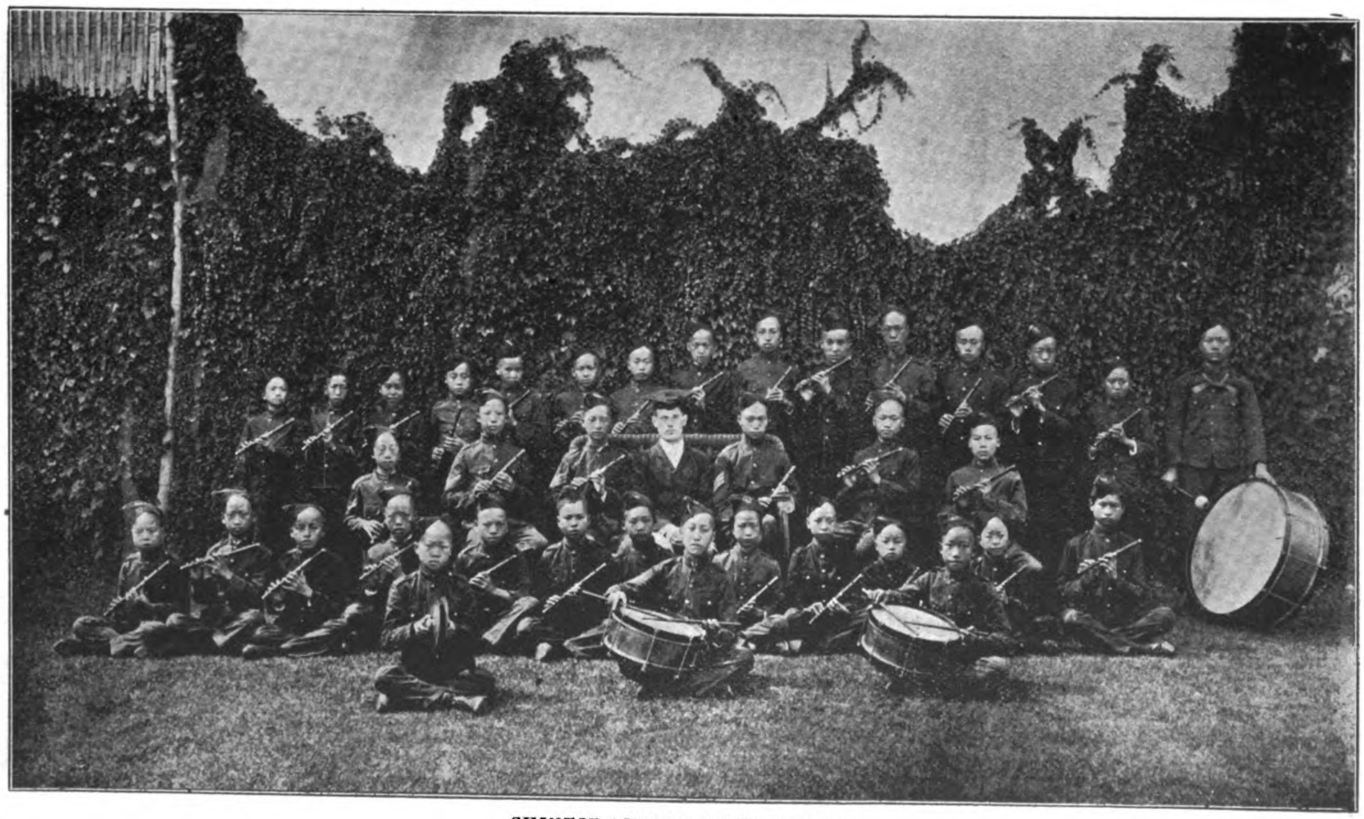
The Automatic Telephone Company's agent about this time made a strenuous effort to secure a franchise from the Council, on the strength of the superiority of their system over the present one, but the Council and public gave their support to the company who had entered the field, relying on their sense of fair play. The company was subsequently granted a 30 years' lease in exchange for 1,000 fully paid up shares, which paid into the Municipal treasury last year a dividend of 6% equal to Tls. 3,000. The capital of the Company is now Tls. 675,000 in 13,500 shares of Tls 50, par value each fully paid up. A dividend of 6% was paid last year, and the shares are quoted at 57 or 7 points above par.

There are about 4,500 subscribers at present. The new edifice, located on Kiangse corner of Hankow, is probably the finest type of modern office building in the Settlement, and the two top floors are taken over for the operation of the plant, which is capable of dealing with 5,000 subscribers. The plant is to be still further enlarged in the near future.

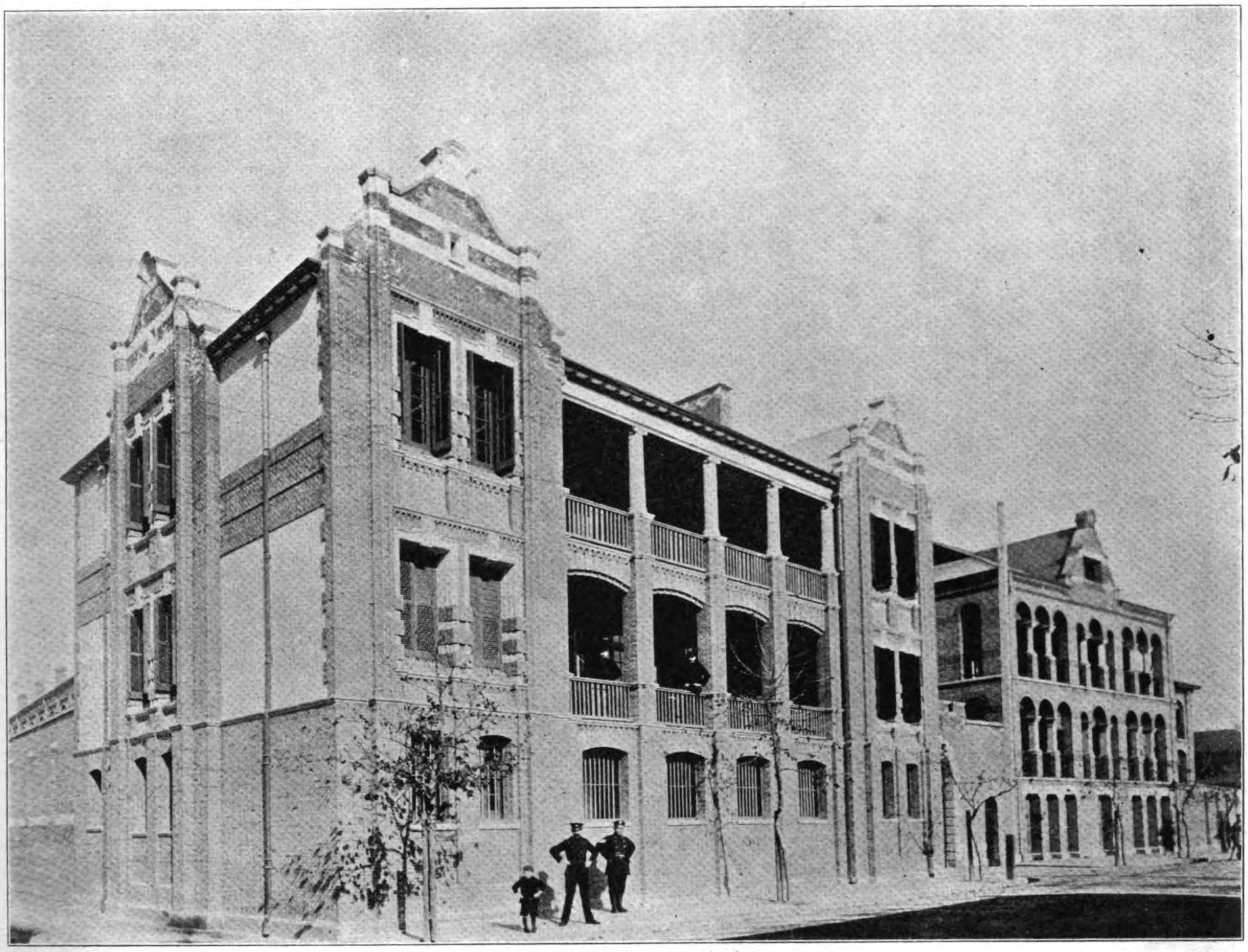
BUBBLING WELL POLICE STATION.



SHANGHAI MUNICIPAL JAIL.



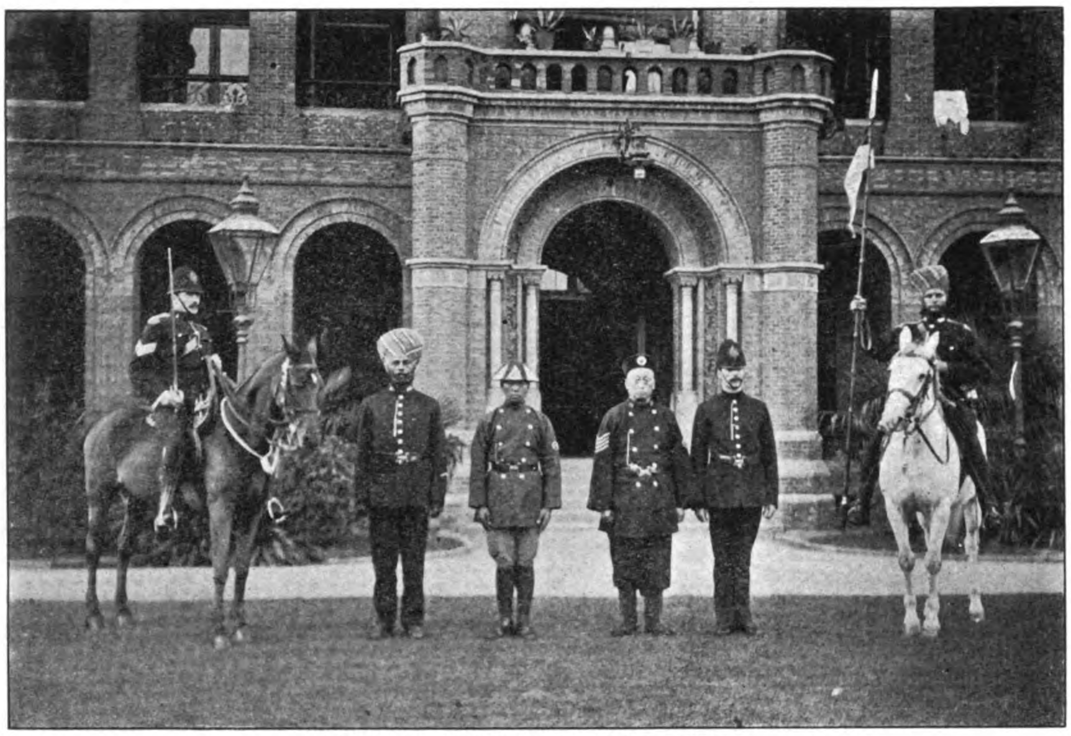
CHINESE PUBLIC SCHOOL BAND.



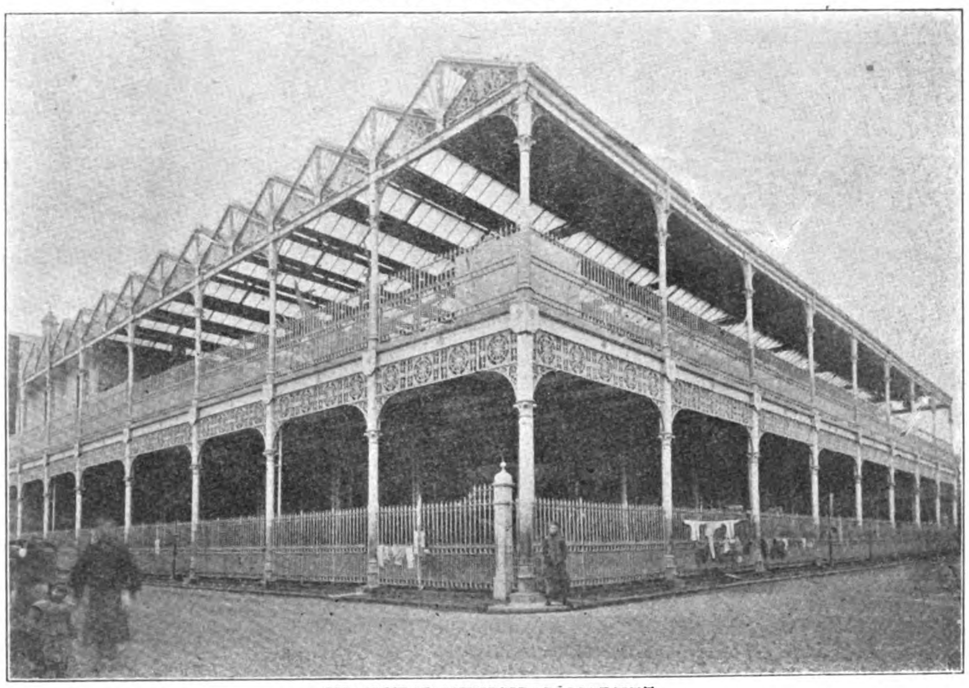
SHANGHAI GAOL.—FLATS AND GODOWNS

WATER TOWER, SHANGHAI WATERWORKS, ON KIANGSE RD.

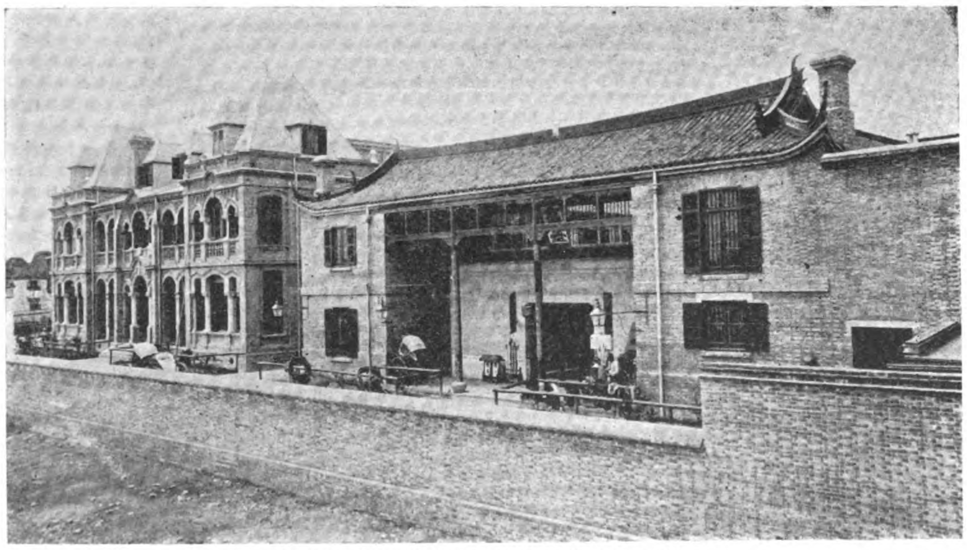
SHANGHAI MUNICIPAL LABORATORY



TYPES OF SHANGHAI MUNICIPAL POLICE



SHANGHAI MUNICIPAL MARKET



MIXED COURT COMPOUND AT SHANGHAI

SHANGHAI MUNICIPAL ELECTRICITY WORKS

The following notes on the equipment and operation of the plant were furnished through the courtesy of Mr. T. H. U. Aldridge, M. I. E. E., the Municipal Electrical Engineer.

The undertaking was originally started in 1882 by a company. In 1893 the Council took over the undertaking when the rated capacity of the Electricity Works was 174 kilowatts. A new generating station was opened in 1896 at the corner of Yuhang and Fearon Roads on the Hongkew Creek. Some of the old machinery from the original station was transferred and other new plant installed. For years, however, the undertaking was a success neither financially nor technically. In 1901 the present Municipal Electrical Engineer, Mr. T. H. U. Aldridge, M. I. E. E., was appointed to take charge of the department. Since that date the generating station, completed in 1896, has been—with the exception of two main walls—entirely demolished, re-built and re-modelled upon modern lines. The station in 1901 contained just over 500 kilowatts of plant capacity. At the end of 1908 the plant capacity was 4,400 kilowatts which will probably be increased during the next twelve months to 5,700 kilowatts by certain modification to two of the existing turbo-alternators and by the installation of two 500 kilowatt exhaust turbines.

Mechanical coal handling is the practice in the Station. The coal is elevated into large overhead storage bunkers by a bucket conveyor; the boiler coal hoppers are fed by gravity through coal chutes from the overhead bunkers; and mechanical chain grate stokers are fitted to each boiler. The ashes are raked from under the fire grates by manual labor and fed into the same bucket conveyor which transports the ashes into a special ash bunker conveniently situated at the end of boiler house nearest the road from whence the ashes are fed through a gravity chute into carts for removal. It has been found in practice that the introduction of mechanical coal and ash handling appliances and mechanical stokers has worked out cheaper than the large quantity of native labor formerly employed for the same purposes. Furthermore very great fuel economies have resulted from mechanical stoking. Feed water is heated up by means of an exhaust steam feed heater and separate economisers fitted to the main flue of each individual boiler.

Superheating the steam to 100° Fah. is the rule. Systematic records, by means of recorders, are kept of the temperature of feed water, steam pressure, and percentage of CO_2 in the flue gases. Both the coal handling plant and the stoker driving mechanism are operated by single phase induction motors.

In the engine room all the high tension switchgear is housed in an annex. The switchgear for each generator and for each high tension outgoing feeder is contained in a separate concrete cubicle. It is of the remote control electrically operated oil break type. On the feeders both horn type and multigap lightning arrestors are connected with the usual isolating links for cutting them out for examination and cleaning. The switchgear low tension operating panels are supported on a concrete and steel platform at one end of and overlooking the entire engine room. It will be seen from the list of plant below that there are several types of plant installed. It may be interesting to note that parallel running of the one crank, two crank and turbine engines, is performed without trouble and this in spite of the fact that no less than four different types of engines and alternators are installed. Each large engine and turbine is provided with its own separate steam driven condensing plant. The condensers for the direct current traction plant are electrically driven by D C 500 volt motors.

Transmission and distribution is on the overhead system. The high tension feeder cables are vulcanized rubber insulated cable, the low tension feeders and distributors bare cable. The high tension feeders supply into some thirty sub-stations, all above ground. Very few pole transformers are in use; they are employed only in outlying country districts where the demand for lighting or power

CLUB CONCORDIA, ON THE BUND, SHANGHAI.—ARCHITECTS: BECKER & BAEDEKER

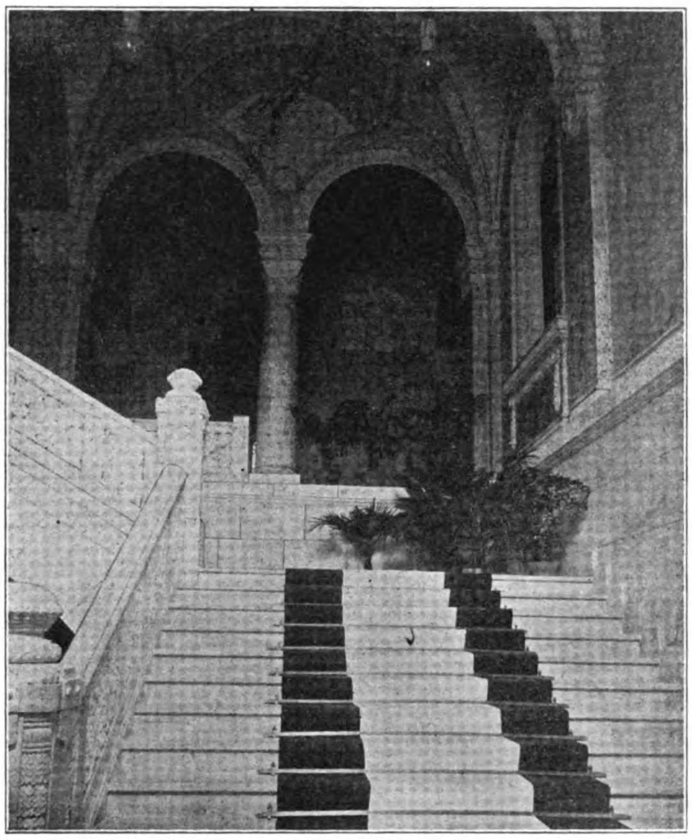
is not sufficient to justify the building of a brick sub-station. Each feeder is arranged on a ring system and looped into various sub-stations so that repair or other work on the high tension lines may be carried out, without interruption of supply to consumers, by feeding round the other half of the ring whilst the section under repair is dead.

The consumption of all consumers is metered and the charge based according to the consumption registered.

There are now over 300 public street arc lamps in use mostly of the constant current series enclosed type. Flame arcs are also used in some of the more important thoroughfares. 60 candle power metallic filament lamps were recently introduced for side street and country road lighting. There are at the present time connected and being connected over 300 of these lamps for street lighting. They are rapidly replacing incandescent gas lamps on account of their superior illuminating properties and the retention of their initial candle power over long periods.

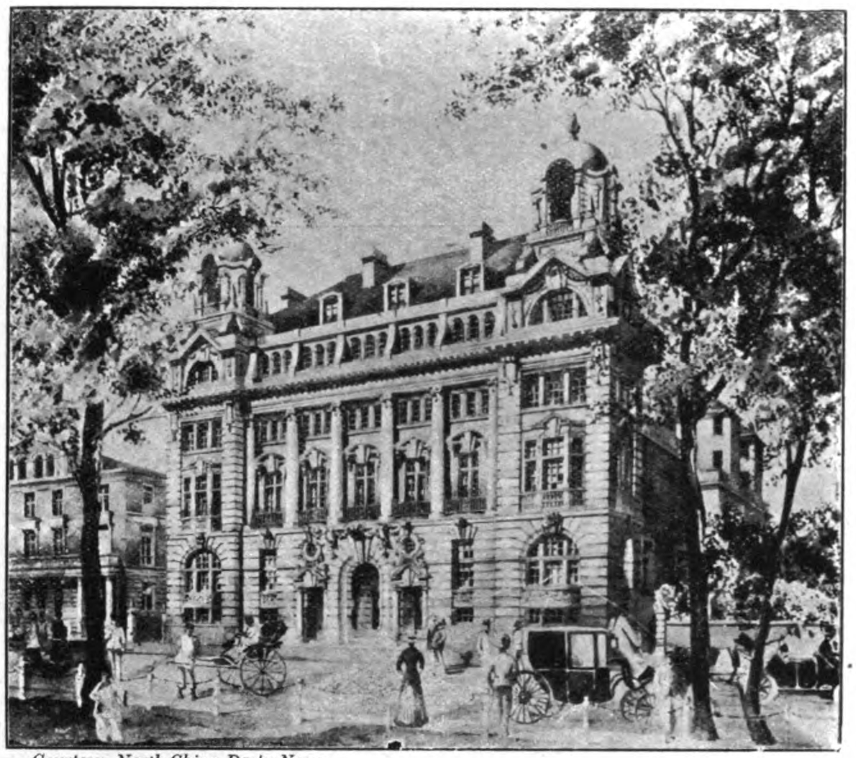
The electric motor is coming well to the front in Shanghai. In April this year there was an aggregate of 552 horse power connected to the municipal mains. It is expected that the figure will be increased to at least 850 H. P. by the end of the year.

Electricity for lighting, heating, power and traction is sold cheaper in Shanghai than in any other city in the East. It is the policy of the department to supply electricity for all or any purposes at as cheap a rate as possible. In 1901 the price per unit (kilowatt hour) for private lighting was 20 candareens. The present price is from 13 down to 9 candareens. Public Lighting was then charged at Tls. 250 per arc lamp per annum and is now Tls. 130. Electricity for heating and power purposes is



MARBLE STAIRCASE, CLUB CONCORDIA, SHANGHAI

CLUB CONCORDIA, BAR



Courtesy, North China Daily News.

THE NEW HOME OF THE SHANGHAI CLUB

WHITEWAY LAIDLAW BUILDING, NANKING AND SZECHUEN ROADS, SHANGHAI.—OFFICES OF THE FAR EASTERN REVIEW

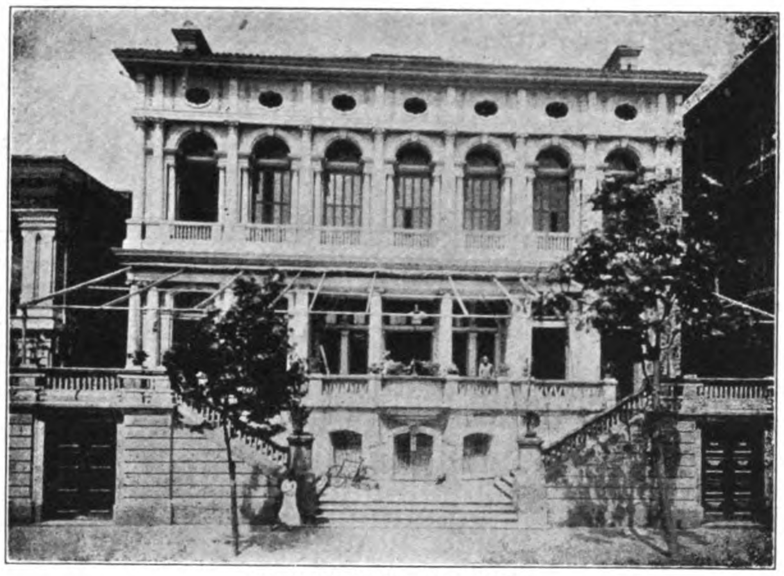
sold at 6 candareens with a sliding scale down to 4.75 candareens. For traction 4.8 to 4.4 candareens per unit.

The following are details of the system and plant:—

Single-phase, alternating (50 per sec.), 2,000 volts, transformed at sub-stations to two and three wire distributing network; 100, 200, 400 volts for supply. Mains, overhead. Boilers—Two Aultman & Taylor, six Babcock & Wilcox marine type, with self-contained feed-water heaters; chain-grate stokers; induced draught; self-contained and separately fired superheaters. Babcock & Wilcox mechanical coal and ash handling plant. Engines—One 150 K. W. Belliss-Mather & Platt; two 150 K. W. Brush; two 600 K. W. Ferranti steam alternators; one 800 K. W. Parsons-Peebles and one 800 Willans Peebles turbo-alternators. Two 600 K. W. Belliss-Peebles 500 to 550 volt D. C. traction generators, one 300 K. W. single phase motor generator, 2,000 volts A. C. to 500 D. C. for traction, and one 50 K. W. motor generator, 2,000 volts A. C. to 500 D. C. Brown-Boveri H. T. remote control switchgear; British Westinghouse electrically tripped feeder board; Ferranti traction switchboard. Supply commenced, 1882.

The estimated profit for the year 1908 was Tls. 66,475. The actual profit made was Tls. 91,375 or 37% more than estimated. This represents a profit after paying interest equal to 6½% on the capital invested in the undertaking, or including interest a profit of 12½% on the year's working. Out of this profit certain expenses have been met, the principal one being the sum of Tls. 23,236 written off the value of part of the old buildings, which were demolished to make room for more commodious and useful ones. The cost of changing over numerous consumers, installations to make them suitable for 200 volt supply was responsible for Tls. 4,975. In all, extraordinary expenses total Tls. 32,878. After meeting these there is a net profit of Tls. 58,497 equal to 4¼% which with 6% interest amounts to 10¼% on the capital.

The sale of electricity for 1909 is estimated to yield a net profit of 93,000 Tls. This result is expected although the prices for electricity for private and public lighting, for power and heating were substantially reduced as from the 1st January this year.



MASONIC CLUB, SHANGHAI

DINING ROOM—CLUB CONCORDIA

Capital at end of 1908 Tls. 1,369,000.

COMPARATIVE TABLE

	Equivalent No. of 8 c. p. lamps connected.	% Increase.	No. of House Service connections added during the Year.	Units Sold. Private Lighting.	Public Lighting.	Power and Heating.	Traction.	Accounted for and used at Work.	Total Units Sold and Accounted for.	% Increase.	Coal. Tons.	Lbs. Coal per Unit Sold.	Max. Load K. W.	% Increase.	% Load Factor.
1900	17,148	23%	54	....	......	......	....	......	523,922	11%	4,800	20.52	292	....	....
1901	21,812	27%	53	....	......	......	....	......	568,669	8%	4,850	19.10	320	9%	....
1902	31,841	46%	139	....	......	......	....	......	754,342	32%	4,570	13.57	444	38%	....
1903	42,500	34%	270	....	......	......	....	......	996,021	32%	6,072	13.65	580	26%	....
1904	66,840	57%	402	853,147	319,499	16,834	....	25,082	1,214,562	22%	8,679	16.00	858	48%	16.2
1905	88,201	31%	249	1,277,140	410 241	34,350	....	54,592	1,776,323	45%	10,629	13.40	1,090	27%	18.6
1906	108,525	23%	414	1,704,563	451,950†	65,932	....	85,230	2,307,675	30%	12,681	12.30	1,411	29%	18.6
1907	140,846	30%	529	2.065,499	457,207†	141,146	....	79,536	2,743.388	19%	13,489	11.01	1,630	15%	19.2
1908	171,918	22	622	2 391,586	445,143	158,455	1,430,889	206,702	4,632,775	68%	14,099	6.82	2,500	53%	21.1

† The explanation of these greater number of units is that they are calculated whereas in 1908 they were actually metered.

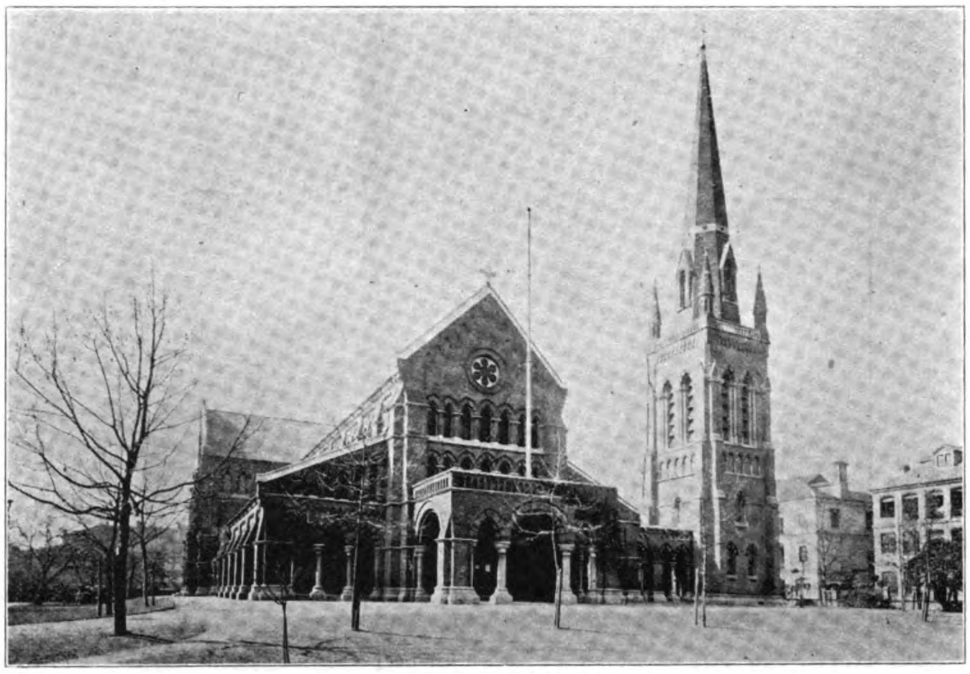
IRRIGATION IN VICTORIA

By H. G. M'Kinney, M. Inst. C. E.*

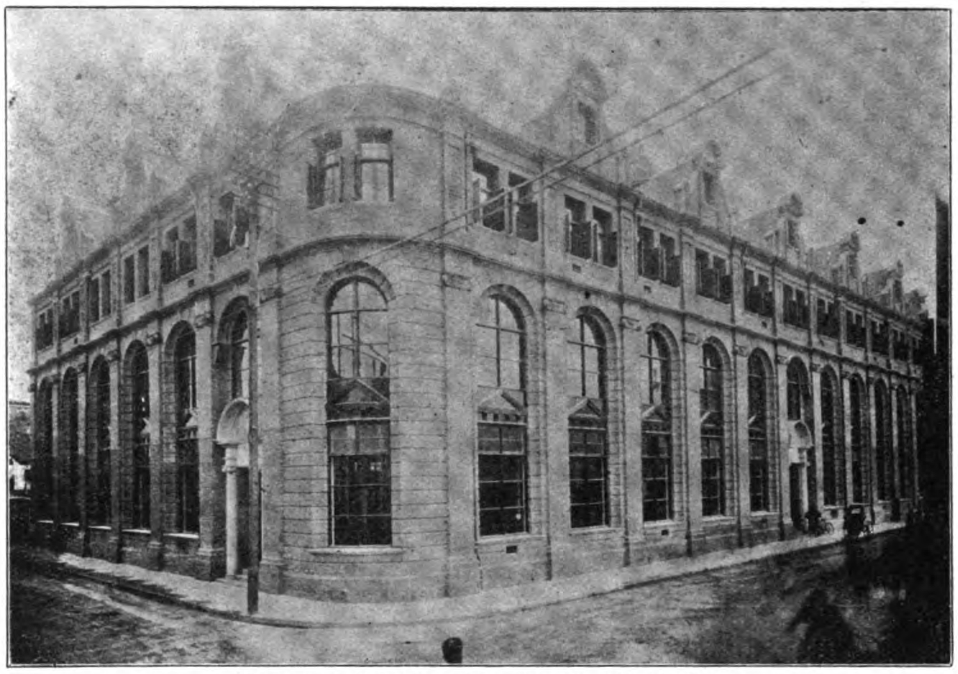
The subject of irrigation in New South Wales and the manifold benefits arising from irrigation have been dealt with in innumerable speeches, reports and newspaper articles during the past 25 years. At every general election, and during every drought, many torrents of eloquence on this subject have been poured out over the heads of the electors. It would almost appear that the possibility of being deprived of such an excellent stock subject as the necessity for irrigation might to some extent account for the fact that many of the politicians who made long speeches regarding it were lukewarm, if not hostile, when any practical steps were proposed. As regards the general fate of reports dealing with it, the words of Dickens in his immortal chapter on "The Whole Science of Government," are fairly applicable. In describing what happened to complaints, applications and other matters which reached the Circumlocution Office, Dickens said: "Boards sat upon them, secretaries minuted upon them, commissioners gabbled about them, clerks registered, entered, checked and ticked them off, and they melted away." However, New South Wales is at last embarked on an active policy of construction of large irrigation works, and it is, therefore, a matter of present interest to consider the financial aspect of the question.

As Victoria is fully a quarter of a century ahead of New South Wales in regard to the construction of irrigation works, and as the vigorous irrigation policy of that State is often held up as an example to New South Wales, it is instructive to compare the conditions in the two States, to consider what has been done in Victoria, and to examine the results accomplished and the cost at which these results have been attained. On examining the map of Victoria we find that of the total area, amounting to about 87,000

*The Engineering Record.

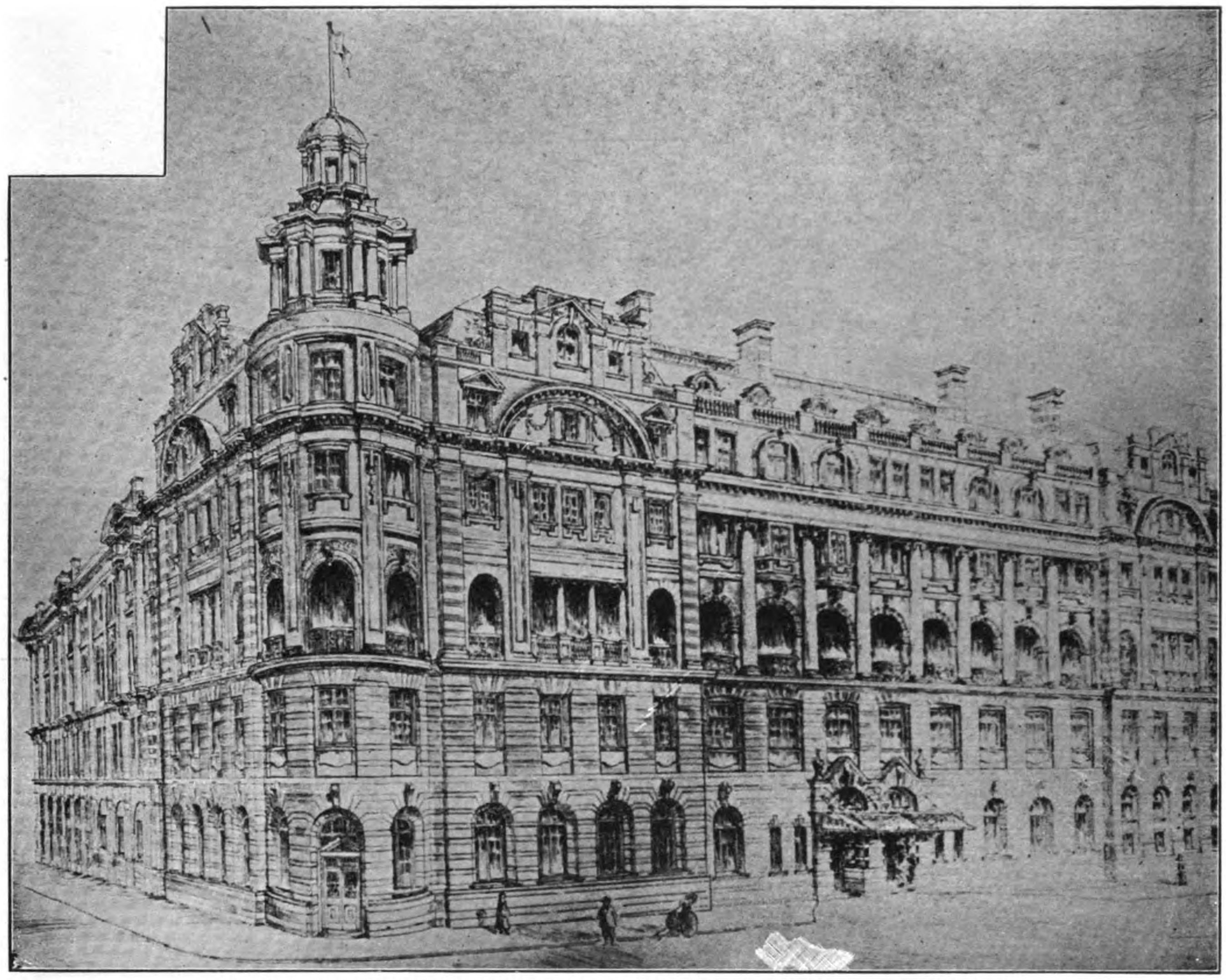


TRINITY CATHEDRAL, SHANGHAI



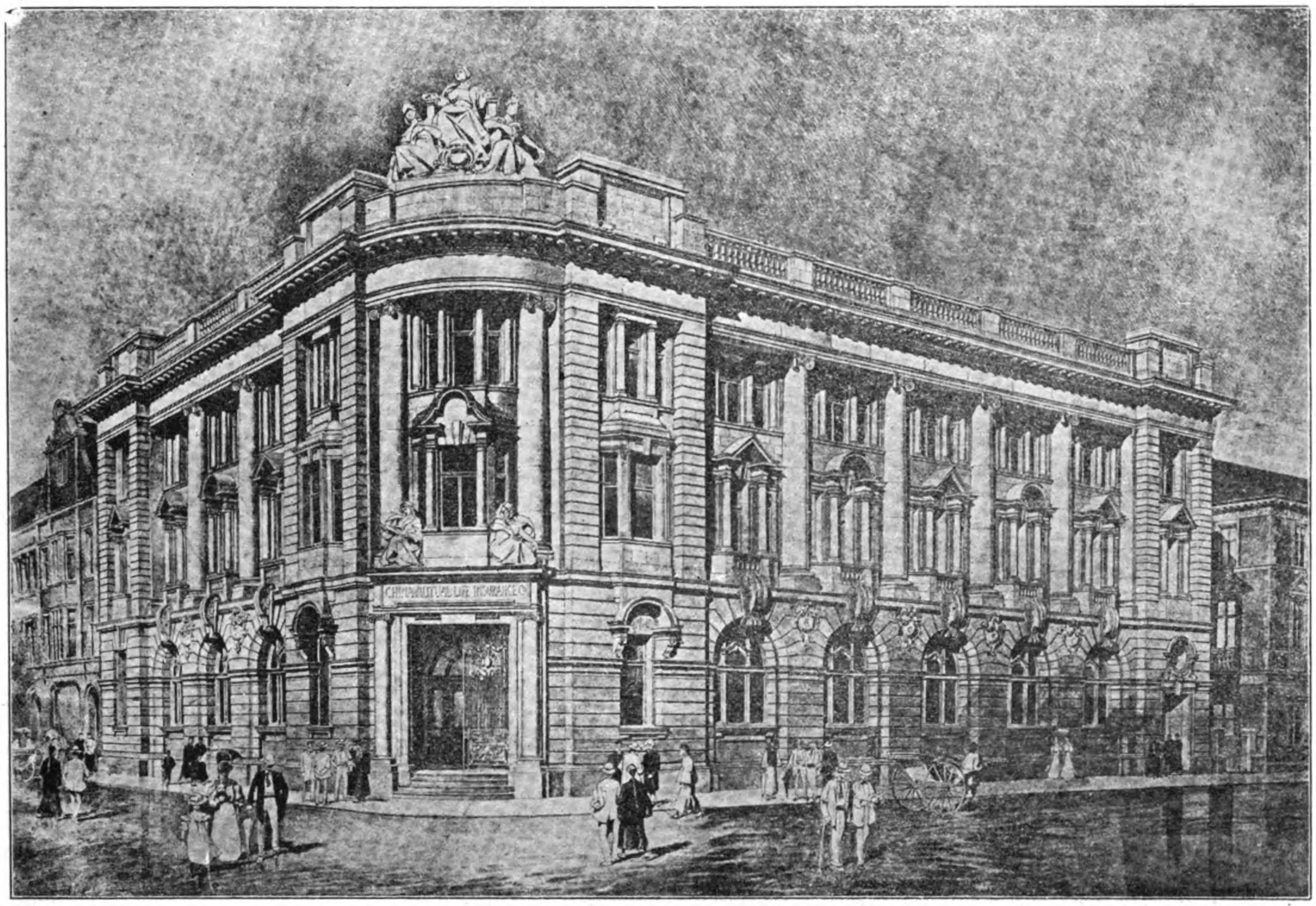
IMPERIAL CHINESE POST OFFICE, SHANGHAI

NORTH CHINA DAILY NEWS BUILDING ON THE BUND, SHANGHAI



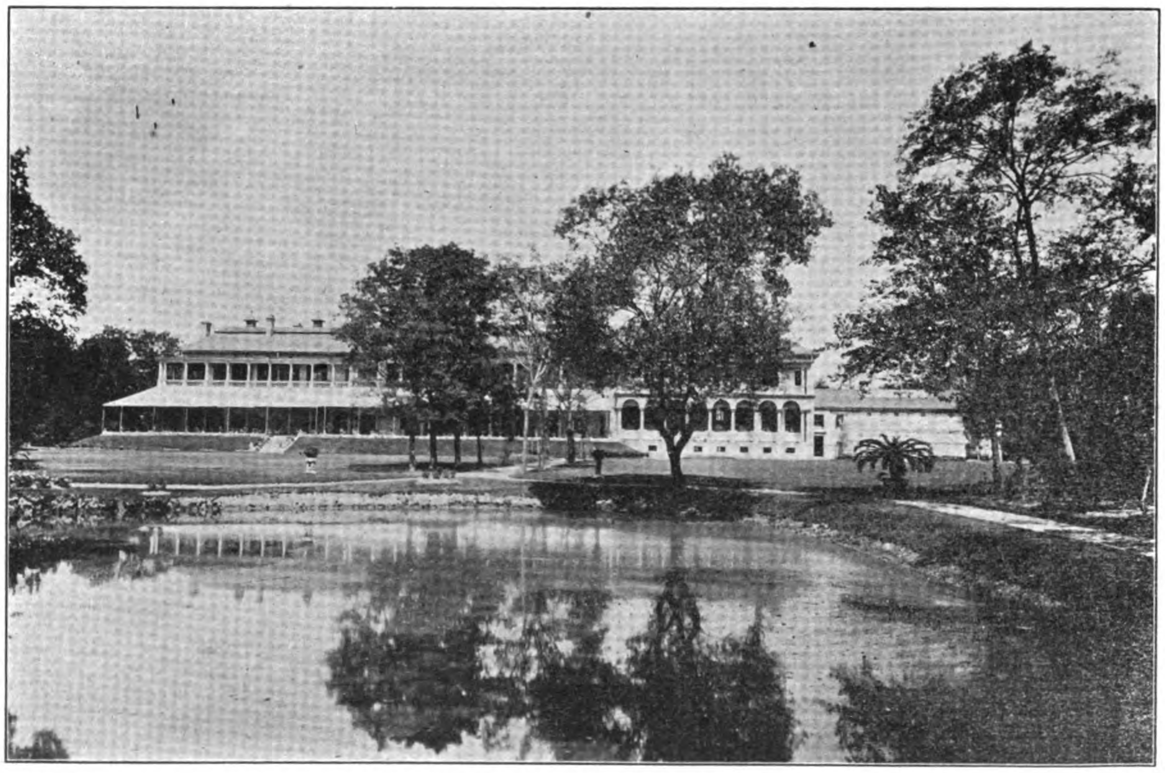
NEW ASTOR HOUSE HOTEL, UNDER ERECTION.—*(Davies & Thomas, Architects.)*

NEW PALACE HOTEL.—*(Scott, Christie & Johnson, Architects.)*

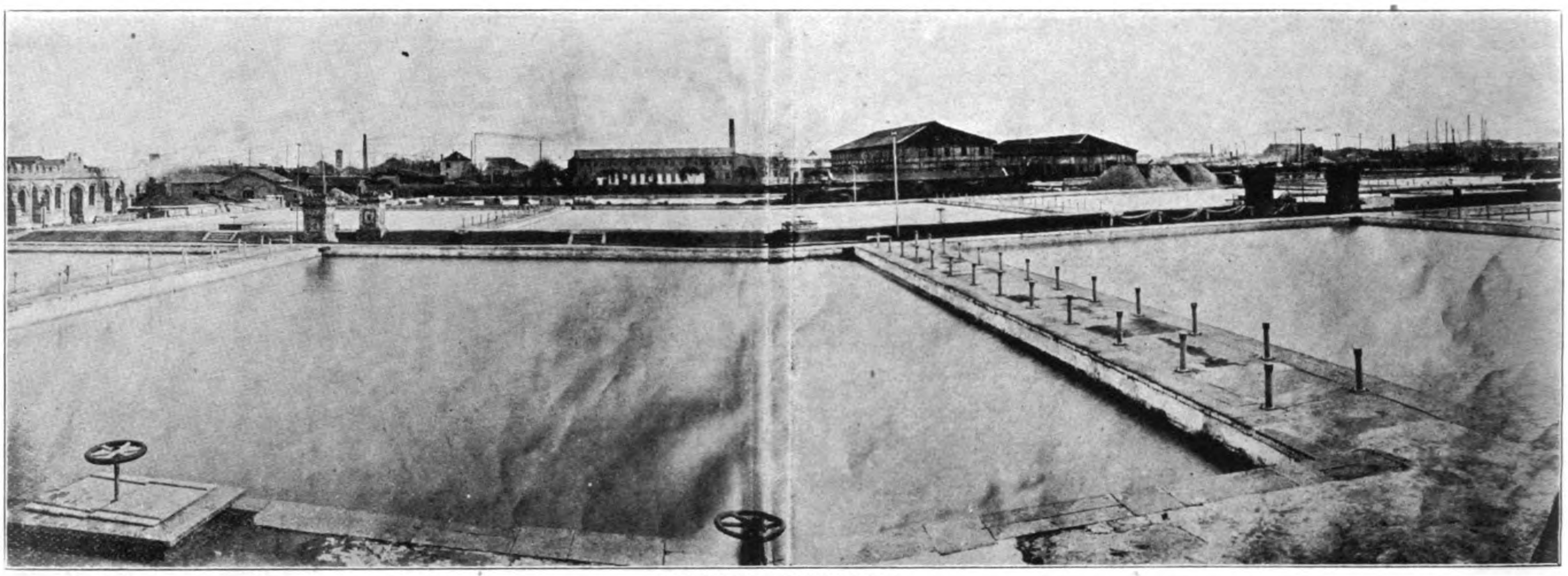


NEW OFFICES OF THE CHINA MUTUAL LIFE INSURANCE CO., LTD., SHANGHAI

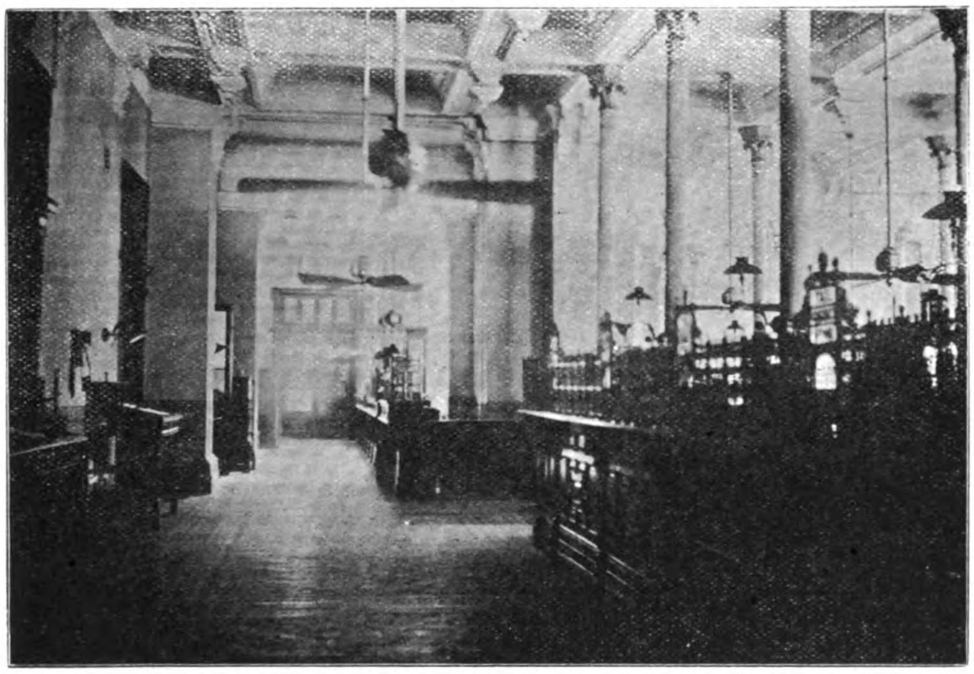
sq. miles, about 51,000 sq. miles belong to the basin of the River Murray. Of this area of 51,000 sq. miles, the northern plains and the mallee country represent 34,000 sq. miles. The northern plains are the great field for irrigation in Victoria, their contiguity to the River Murray, and the fact of their being intersected by a series of tributaries of that river, affording excellent facilities for irrigation on a large scale. The relatively great area of these plains, the fertility of their soils and their comparatively moderate distance from Melbourne combine to render them of vital importance to Victoria. On the other hand, the great field for irrigation in New South Wales—that is, the district



THE COUNTRY CLUB, SHANGHAI



SHANGHAI WATERWORKS



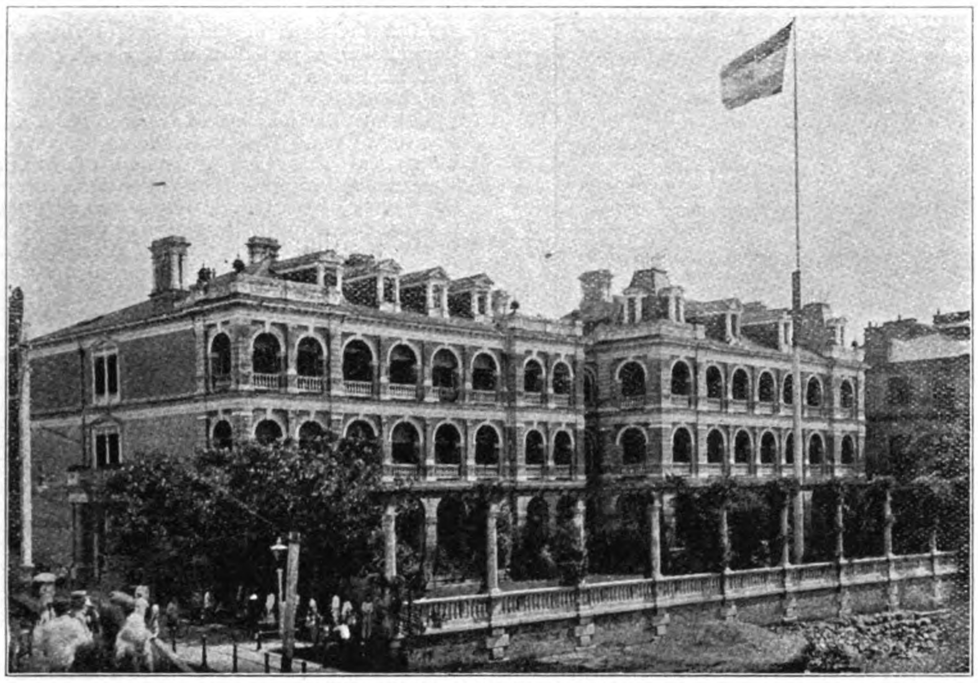
INTERIOR OF HONGKONG AND SHANGHAI BANK, SHANGHAI

between the Murray and the Murrumbidgee and the plains on the north side of the latter river—though fertile and valuable in a high degree, occupies no such relative position in New South Wales as is occupied by the northern plains of Victoria in that State. It is necessary to bear this difference in mind when considering the manner in which the financial aspect of irrigation has been treated in Victoria and the manner in which it is likely to be treated in New South Wales.

In the early eighties the question of irrigation in Victoria was brought prominently to the front, largely through the eloquence and enthusiasm of Mr. Deakin, who was then premier and minister for water supply. A series of valuable reports were jointly prepared on the subject of water conservation and irrigation by Mr. George Gordon, M. Inst. C. E., chief engineer for water supply, and Mr. Alexander Black, surveyor-general. The former had a wide experience of irrigation in India, while the latter had a comprehensive knowledge of the natural conditions and of the conditions of land occupation in Victoria. Unfortunately, at the outset the business aspect of the irrigation question was lost sight of, and, judging from the subsequent report of a Royal Commission, it would appear that the main object in view was to create what Americans would describe as a great irrigation boom. The first important step was to discard the advice and dispense with the services of the only experienced irrigation engineer in that State—Mr. George Gordon. Then followed a period of mismanagement and extravagance which did much to discredit the cause of irrigation in Australia. Although Mr. Deakin visited America in the early part of that period, and published a most instructive and valuable report on irrigation in the Western States, showing how splendid progress was being made without the expenditure of a single dollar of public money, the lessons to be derived from this report were entirely disregarded in Victoria. Under the authority of a special Act of Parliament, irrigation trusts were authorized to borrow money from the government of that State for the construction of irrigation works and such trusts were rapidly constituted in all directions. Applications for loans quickly poured in, and were met with a lavish hand. No time was lost in spending the money thus advanced, while, at the same time, the government energetically entered on the construction of irrigation works, which were described as "national."

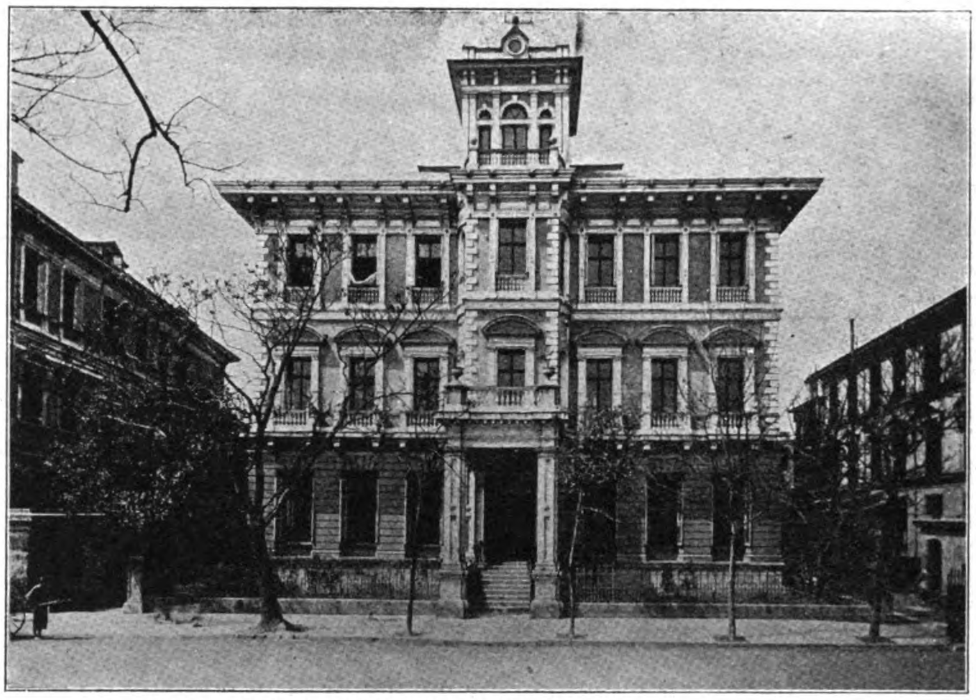
When the time arrived for dealing with the question of bringing the works into operation and of obtaining some return from them, the boom ended abruptly. The irrigation trusts were soon found to be in an unsatisfactory financial position, and there arose a widespread demand for inquiry and investigation. The result was that a Royal Commission was appointed to inquire into the whole subject of irrigation and rural water supply, for in addition to numerous irrigation trusts there was a considerable

HONGKONG AND SHANGHAI BANK, SHANGHAI



GERMAN CONSULATE, SHANGHAI

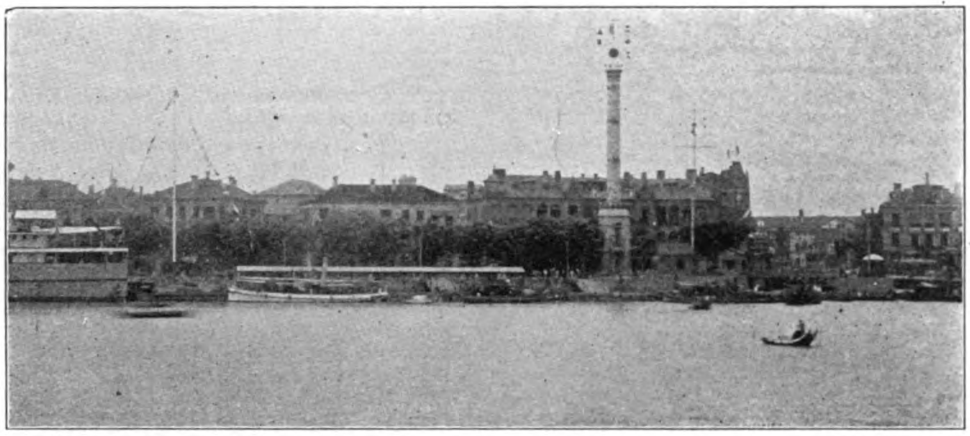
number of trusts which dealt only with water supply for stock and domestic purposes. The report of the commission was issued in 1896 and the following extracts will show that the description already given of the state of affairs at that time is fully warranted. In the summary of its conclusions, the commission's report has the following: "It is now 10 years since the Irrigation Act was passed, and the majority of the trusts are seemingly not taking any more active steps for meeting their loan obligations than they were shortly after being constituted. The principal reason for this unsatisfactory condition of affairs is that in the case of many of the trusts there was no justification for their formation, and in the case of others that the works were constructed far in advance of the present requirements of the districts. A contributing cause was that in many instances the cost of the works greatly exceeded the origina estimates. Our investigations have led us to the conclusion that the great majority of the trusts never should have been constituted, and never would have been, had the schemes submitted for departmental approval been considered from an ordinary common-sense standpoint." * * * "Unfortunately, however, the public mind was excited at the time, and the gospel of irrigation was preached from one end of the colony to the other. The farmers had been suffering from a cycle of dry seasons, the price of produce was high, and the prospect of insuring their crops against the exigencies of climate by means of irrigation appears to have overruled all prudential considerations. Schemes were hastily conceived, and as hastily carried out The question as to whether the cost of the undertaking would be commensurate with the benefits to be derived therefrom, or whether the land could bear the burden that would be placed upon it, was apparently lightly considered, if considered at all. Trusts have been formed and extensive works constructed in districts where the water supply for irrigation is practically nil." The commission gave a number of instances bearing out these conclusions, and, in referring to the reports of Messrs. Gordon and Black, added: "We are sorry to say that the advice of these experts has been practically unheeded, as apparently not any of their valuable warnings and recommendations have been adopted either by the irrigation trusts concerned, by the department which paid the experts for their reports or by the governments which advanced the money to construct the vast irrigation works of the colony."



CHARTERED BANK OF INDIA, AUSTRALIA & CHINA, SHANGHAI

PORTUGUESE CLUB, SHANGHAI

It is necessary to explain that the rivers in connection with which by far the greatest expenditure had been incurred up till the period of the commission were the Murray, the Goulburn, and the Loddon. In regard to the last-mentioned river, the report of the commission summed up the position as follows: "Six trusts have been constituted in this district, with a gross area of 274,910 acres. The water available, after making allowance for the demands of riparian owners and the Loddon United Waterworks Trust, and for losses by percolation, is, according to the estimate of the department, only sufficient to irrigate 53,479 acres annually, or about one-fifth of the area comprised within the trust's territories. £222,649 of State money has been advanced to these trusts, and this has been expended in the construction of channels capable of commanding about 217,000



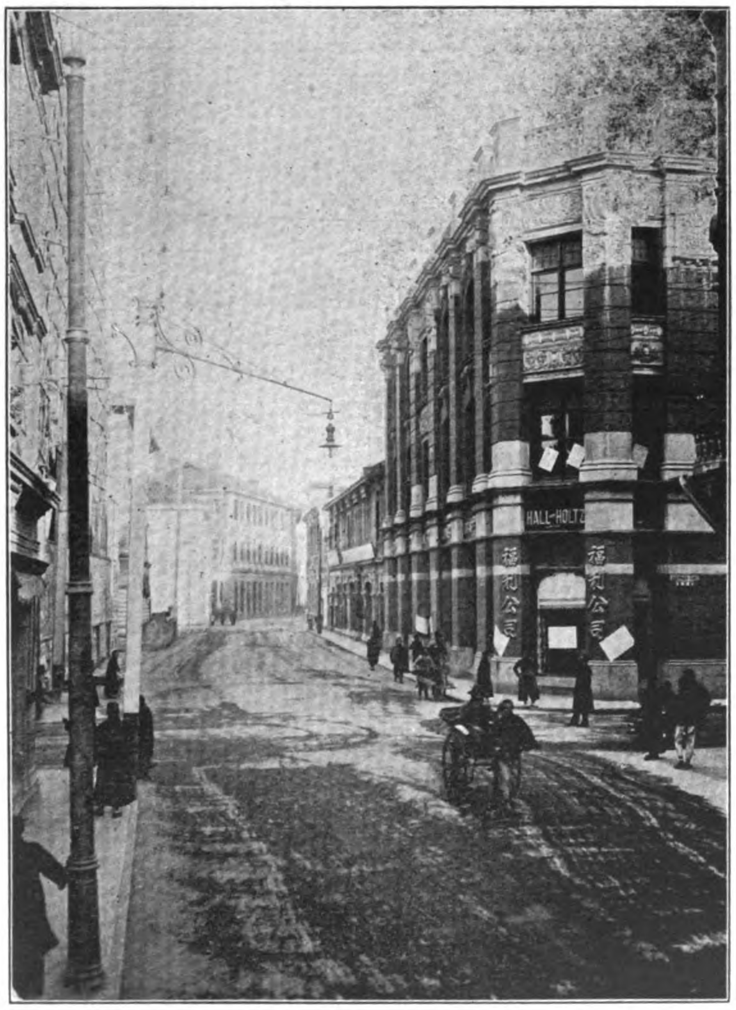
FRENCH BUND, SHANGHAI

acres. Consequently the great proportion of the money advanced has been absolutely thrown away. The matter does not end here, however, for the six trusts mentioned are debited with £145,000, their share of the cost of the Loddon national works, and are expected to pay £5,800 a year as interest on this liability. The result is that 274,910 acres have been saddled with a liability of £376,649, although, as far as irrigation is concerned, only 53,479 acres can be directly benefited by the expenditure."

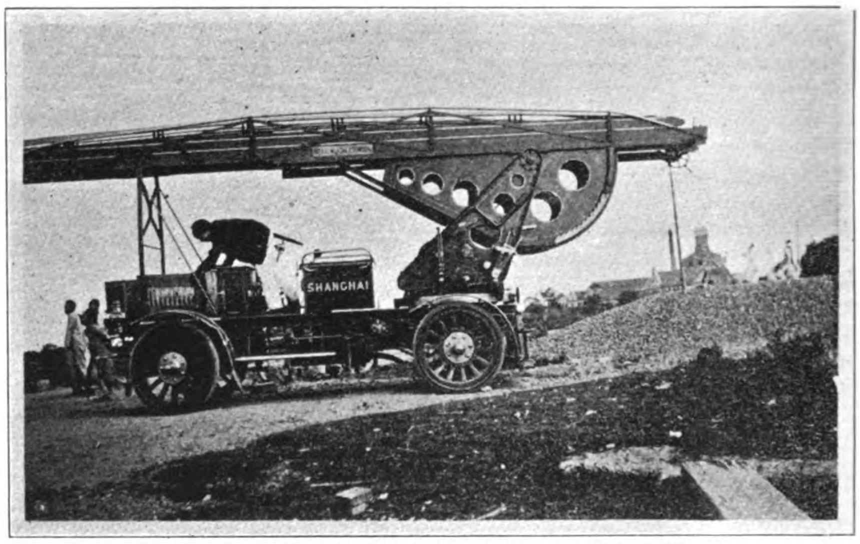
Up till the time of the report of the commission in 1896 the amount of loan money expended on irrigation works in Victoria, including arrears of interest, was £1,801,854. The total area irrigated in the year 1895 was only 120,677 acres, and of this area only 50,706 acres was under crops, vines and fruits, the balance being merely pasture land, which had been flooded. Thus, for every acre under crop there had been an expenditure of more than £35 10s, or, taking both crops and pasture land, the expenditure amounted to nearly £15 per acre.

After the issue of the report of the Royal Commission, a period of writing off of capital and interest set in. Up till June 30, 1905, the amount of capital thus written off was £724,776, while the amount of interest written off was £323,733. The outstanding arrears of interest at that time amounted to £12,946. The amount expended on irrigation, through the agency of the trusts, was £1,122,087, while that expended by the government direct on the so-called national works was £969,439. Thus the actual outlay on works up till 1905 was £2,091,526, and the extent of the irrigation due to this expenditure amounted to only 165,656 acres. The figures available do not show the proportion of this represented by pasture land; but even if the whole area was under crops, the result was very poor for such a great outlay, the latter being over £12 12s for every acre irrigated. This is a miserable record compared to what should have been done. There are at least ten of the Western States of America in

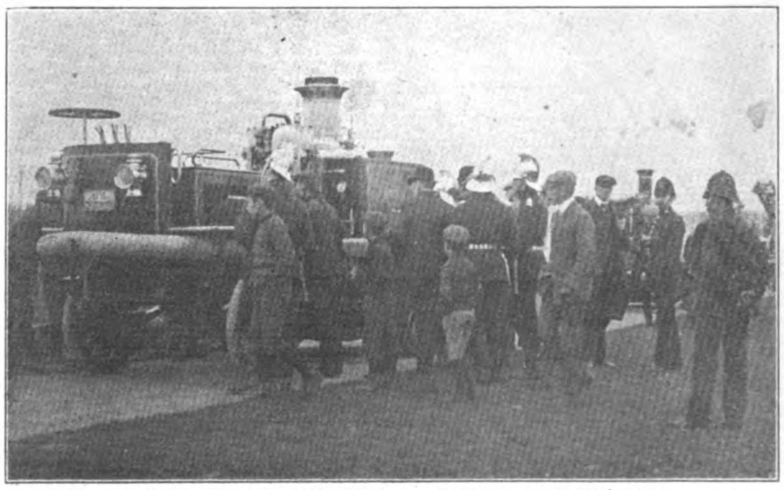
FRENCH CONSULATE, SHANGHAI



NANKING ROAD, LOOKING FROM SZECHUEN ROAD TOWARDS THE BUND, SHOWING HALL & HOLTZ BUILDING



NEW TURNTABLE, SHANGHAI FIRE DEPARTMENT



NEW "FIRE KING," SHANGHAI FIRE DEPARTMENT

which the area of irrigation is much greater and in some of which it is ten times greater than in Victoria, and in every instance the taxpayer has not been asked for a single dollar of the outlay required. The principle which has been recognized and acted on is that wherever private enterprise is able and willing to carry out irrigation works it should be afforded every facility for doing so. The magnificent result of this policy has been that last year ten millions of acres were under irrigation in the United States.

Within the last year great extensions of the irrigation works of Victoria have been taken in hand, and, at the same time, the late minister of water supply, Mr. Swinburne, passed and brought into operation an Act of Parliament which is probably the most comprehensive measure of its kind in any part of the British dominions. This act places the control of the irrigation trusts, and the whole management of the irrigation works of the State, in charge of three commissioners. For the position of chairman of this commission the Victorian government has had the good fortune to secure the services of Mr. Elwood Mead, who resigned from the position of chief of irrigation investigations in the United States to take up that office. But after 20 years of such engineering and management as was described and characterized by the Royal Commission, it is very doubtful whether even such an experienced engineer and manager as Mr. Mead will be able to place the irrigation works of Victoria on anything like a satisfactory business footing. From the terms of the Water Act referred to, and from the discussion which took place in the Victorian Parliament regarding it, the inference which may fairly be drawn is that from the general taxpayer's point of view the irrigation works must be regarded as a permanent and hopeless failure. Waterworks districts are constituted under the act to take the place of the trusts, and a general rate is to be levied on all lands included in these districts for the supply of water for domestic and stock purposes. The following words of the act, relating to this subject, are of special interest: "Such rate may be made for one year, and shall be of such amount in the pound of the rateable value of such lands as may be necessary to recoup the proportion of interest on cost of works (except such works as are by this act or shall be by some future act of Parliament declared free head works), and of maintenance and management thereof, properly debitable in respect of the service rendered by the works as the commission may determine." In order to make clear the importance of the exemptions here made it is necessary to explain that under the designation of "free head works" are included storage reservoirs, diversion weirs, head works and main canals.

In addition to the general rate for water supply for domestic and stock purposes the commission is empowered to levy a special rate for irrigation in any water district after giving notice in the "Gazette" that such district is supplied with water for irrigation. The land may be subdivided into three classes, according to the facilities for distributing the water, and the rate for the land of the highest class is to be one-fifth of the net annual value, according to the valuation made under the direction of the commission. The cost of the free head works, which are enumerated in the schedule to the act, amounted to £1,068,182, and the further outlay on such works has been proceeding rapidly since the act was passed. The terms "national works" and "free head works" are very convenient in connection with such irrigation works as have been carried out in Victoria during the past 20 years. If the principle involved in these terms were applied to the Sydney water supply works it would be a pleasant change for the ratepayers of the city and suburbs. The Prospect and Cataract reservoirs, the tunnel, canal and aqueduct works, the various service reservoirs and pumping stations, and the main pipes would be classed as "free head works," so that the general water rate would be based only on the cost of reticulation and maintenance. To complete the parallel it would be necessary to have a separate rate for water for the irrigation of gardens. The idea has been put forward that in the distant future the amount raised from rates for irrigation in Victoria will increase to such a degree as to pay interest on the outlay. It is possible, but very improbable, that this hope may be justified so far as regards the expenditure from this time forward, but it would be absurd to expect anything like a fair return on the outlay in the past, considering that much of it was, in the words of the report of the Royal Commission, "absolutely thrown away."

REMARKABLE RECORD IN PHILIPPINE PLACER MINING

The operations of the Paracale Gold Dredging Company, Ltd., for the six months ended December 26th on the Paracale River, Camarines, Philippine Islands, show an average production of $1.00 gold from every cubic yard of dirt dredged during that period. This is verified by the dredgemaster's daily report and corroborated by the statement of the International Banking Corporation. The former shows an actual dredging time of 2735.75 hours with 50,244 cubic yards of dirt handled and the bank statement shows that 2,814.1 ounces of bullion were sold at the smelter for $50,653.80 or approximately $18.00 gold an ounce. This is a trifle over $1.00 gold a yard. The dredgemaster's report covers the period from May 23rd, 1908, to December 26th, 1908, and the Bank's statement covers the period from June 15th, 1908, to January 1, 1909.

Following is the summary of the dredgemaster's weekly reports covering the period referred to:

Week ending:	Actual Dredging Time in hours.	Cubic yds. handled, Bank Measurements.	Yards handled per day.	Time hung up for Repairs.
1908.				
May 30	102½	1400	433	41½
June 6	115½	1733	288	28½
June 13	125	1549	258	19
June 20	116½	1743	290	27½
June 27	117	1683	280	27
July 4	118½	1743	289	25½
July 11	102	1370	228	42
July 18	123¾	2195	366	40¼
July 25	125	2364	394	19
Aug. 1	105¼	1970	328	38¾
Aug. 8 Shut	....	....	....	144
Aug. 15 down	....	....	....	144
Aug. 22 for	....	....	....	144
Aug. 29 re-	....	....	....	144
Sept. 5 pairs	....	....	....	144
Sept. 12	62	1125	188	82
Sept. 19	120½	1955	326	23½
Sept. 26	128¼	3080	513	15¾
Oct. 3	120¾	2464	411	23¼
Oct. 10	75¾	1456	242	68¼
Oct. 17	129½	3173	529	14½
Oct. 24	112	3174	529	32
Oct. 31	97½	2230	372	46½
Nov. 7	112	2410	401	32
Nov. 14	115	2120	353	29
Nov. 21	118	2315	386	26
Nov. 28	127	2426	404	17
Dec. 5	131½	2365	391	12½
Dec. 12	115	2210	368	29
Dec. 19 Restacking	....	....	....	144
Dec. 26 Tailings	....	....	....	144
Total	2735¾	50244	....	1719¼

* SUMATRAN MINING

Mr. Th. F. S. Delprat, late Chief Engineer of the State Railways in the Dutch East Indies, recently delivered a lecture on "The Mining Industry in Sumatra." The task the speaker imposed upon himself was to show what European industry had accomplished in a limited part of India, and to give an idea of the great financial interests which Holland and Europe have in the Indies.

Coal

Dealing with coal, he pointed out that coal beds are numerous throughout the whole archipelago, both on Borneo and on Sumatra. No attention was paid to these coal beds before 1865, when mining engineer Greve was commissioned to make a geological survey of the West Coast of Sumatra.

The speaker then proceeded to give the history of the Ombilin coal fields, consisting of four characteristic parts. At first it was supposed erroneously that this was a field where coal was on the surface, but, as a matter of fact, this is but an ordinary mine, of which at present only one fourth part is in exploitation.

The Ombilin coals are comparatively of recent origin. They have a great heating capacity and very good properties. A less satisfactory property is, however, that these coals soon become decayed—like the Russian coals. The result is that the coals, which in a fresh condition have a shiny appearance, become, after a comparatively short space of time, dusty or gritty. These coals must be used quickly after they have come out of the mine; they are not suitable for the formation of large stores for the Navy or steamship companies.

In order to remedy the great drawback of this excessive quantity of grit, a briquet factory has been established. In 1901 the amount of coal used in the archipelago was 350,000 tons. The great competitors of the Ombilin coals are the Japan and Cardiff coals.

The financial result has not been unsatisfactory. Emmahaven had to be built, and a heavy railway from Padang to the highlands had to be constructed; an aggregate of 23 to 24 million guilders had to be invested in these coal fields. Nevertheless lately a net profit of 745,000 guilders (£62,083) was obtained. At present eighty-five Europeans are employed on this field.

Mr. Delprat expressed his appreciation of the work done by forced laborers. His opinion of the Chinese laborers, who were sent to the mines in a poor state, was less favorable. Gradually a change had been made in replacing the Chinese by free Japanese laborers, who receive f. 70 (£5 16s. 8d.) per man, and who enter into contracts for a stipulated time. At present there are employed on these fields 1,500 or 1,600 men under contract, and about 1,500 men who work without any contract, but at their own free will. Women have also been sent for, with the result that now a little town with factories, houses, a school, a prison, etc., has been built in a large uninhabited region.

Gold

It was known to the ancients that much gold was in existence in the Indies, but it is only a short time since that the interior of Sumatra has been penetrated. Since 1879, however, by great effort and expenditure, the difficulties which hindered an exploitation of the gold mines at Benkoelen has gradually been mastered. The speaker referred more particularly to the results of the Redjang Lebong mine, the f. 100 shares of which at present represent a value of f. 1,045. It is much to be regretted that the Salida mine ("M.J." October 20, 1906, p. 458), which was worked a long time ago by the East India Company, but which they abandoned without any definite reason, is at present not in exploitation.

The speaker had no time left for the discussion of the petroleum industry at Palembang and in the Residency of the East Coast of Sumatra. As among those present there were a number of speculators interested in the gold and petroleum industry, this was greatly deplored, especially by the shareholders of the Koninkbyke Exploratie Maatschappy. Mr. Delprat, however, proposed to the meeting to devote to this subject a special lecture, which proposal was received with great applause.

* Translated from "De Indische Mercuur" for "The Mining Journal."

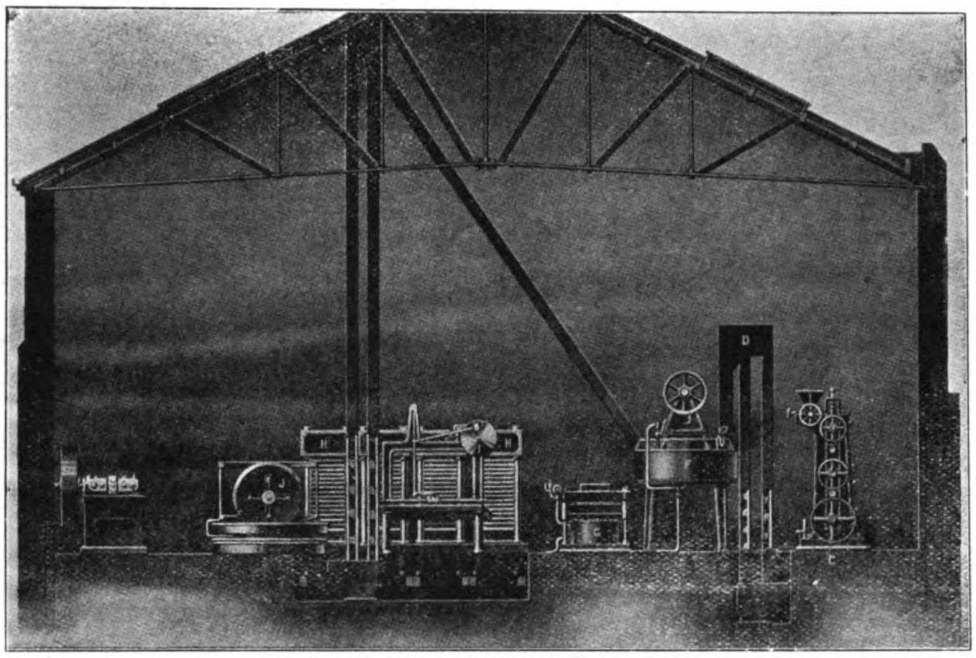
F. M. S. TIN OUTPUT FOR APRIL

	Piculs.		*Piculs.*
Belat	720	Pengkalen	400
Bruseh	320	Pusing Lama	669
Gopeng	550	Rambutan	335
Kanaboi	267	Redhills	600
Kinta	410	Royal Johore	102
Kuantan	73	Sempam	54
Lahat	574	Serendah	295
New Gopeng	141	Sipiau	115
Pahang Consolidated	1764	Tekka	500
		Tronoh	2410

MODERN OIL MILLS

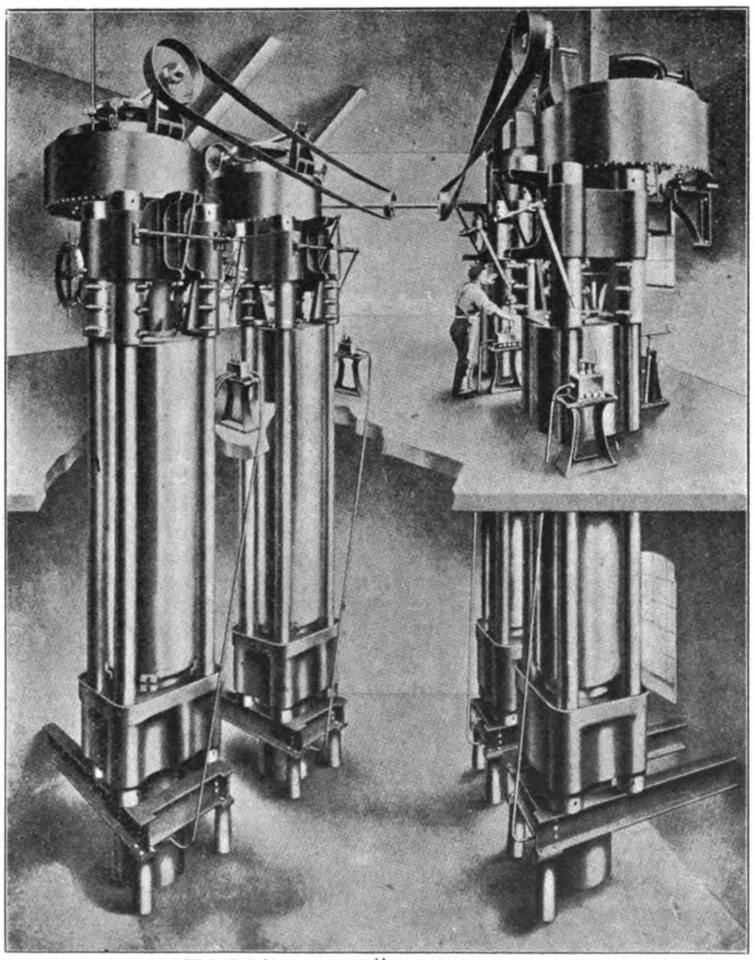
With Notes on Dredgers, from the Works of Rose, Downs, & Thompson, Ltd.

The fact that the various countries which pass under the designation "THE FAR EAST" form one of the richest fields in the universe for the cultivation of all manner of oil-bearing seeds, beans and nuts is so generally recognised as to require no further comment. In the equatorial districts we find cocoanut and sesamum; in the middle regions cotton, groundnut, castor, sunflower; in the north, the China bean, rape and linseed. Although the peoples of the Orient consume huge quantities of these seeds and nuts in the production of oil for food purposes, yet so great is the production of seed, that many thousands of tons of these valuable materials are shipped to home markets for treatment there. As can be well imagined, the natives of the East extract the oils by means of apparatus of great antiquity, entailing much manual labor, the utilization of an excess of ground space, and the methods adopted result in a great proportion of extractable oil being still left in the residue. With the object of introducing the modern and consequently economical machinery in use at home into the East, the British firm of ROSE, DOWNS & THOMPSON, LIMITED, of HULL and LONDON, have established a branch of their business in Shanghai. This firm has been established no less than 132 years, and are probably the largest as well as the oldest specialists in modern OIL MILL MACHINERY. However, experienced engineers in the East may be—and without a doubt there are some of the most capable men in the world engaged upon the various enterprises in the East—yet it cannot be expected that they should be experts in this very important branch of engineering, since almost every different seed and nut requires its own special treatment, involving various combinations of plant, in order that the highest possible percentage of oil may be obtained; and the firm under review believe that in establishing their Eastern branch, they will be of great assistance to the numerous houses situate and doing business in the East, in educating the natives to the value of modern appliances, through the medium of these merchants. The Oriental is very slow to combine in the formation of joint-stock concerns, and this fact calls into requisition small installations, requiring little outlay, and Messrs. Rose, Down's & Thompson, Ltd. recognised this fact early, and they supply complete plants for the economic treatment of seeds from a total inclusive price of £85 up to £30,000 and even higher.

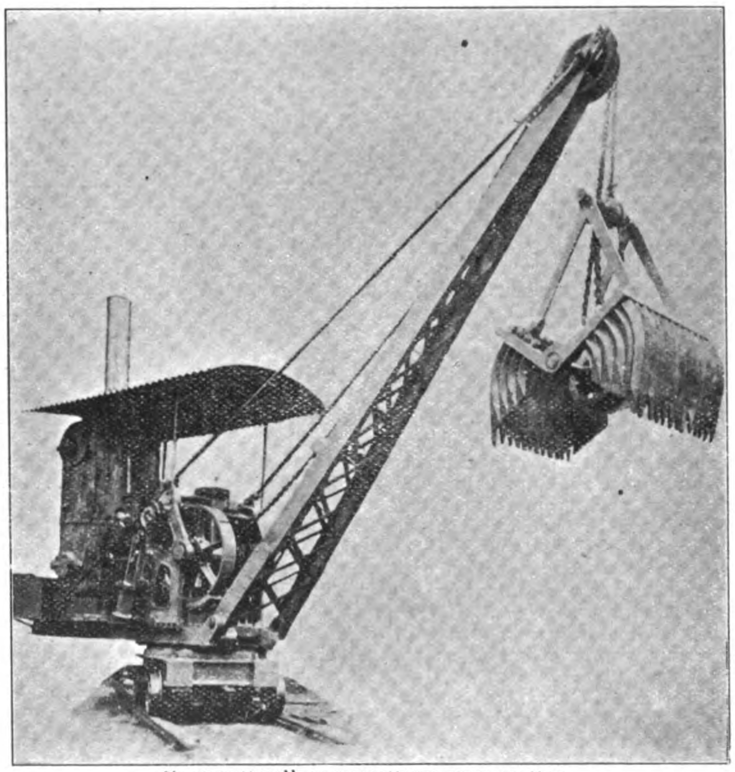


(4 PRESS) ANGLO-AMERICAN OIL MILL.

The Anglo-American process of oil-extraction, which is universally recognised to be the standard system, was the invention of this firm, and this system is in use now in almost every civilized country in the world. The illustration first shown represents a complete Oil Mill working on this system. The process is as follows:—the seed is first rolled or crushed through a series of chilled rolls, thus breaking all the oil cells of the seed so as to permit the escape of the oil when the seed is under pressure. From these rolls, the seed is automatically conveyed to a Kettle. This is an apparatus provided with a steam jacket and also an appliance for injecting live steam amongst the crushed seed. This process is called cooking or tempering. The hot seed

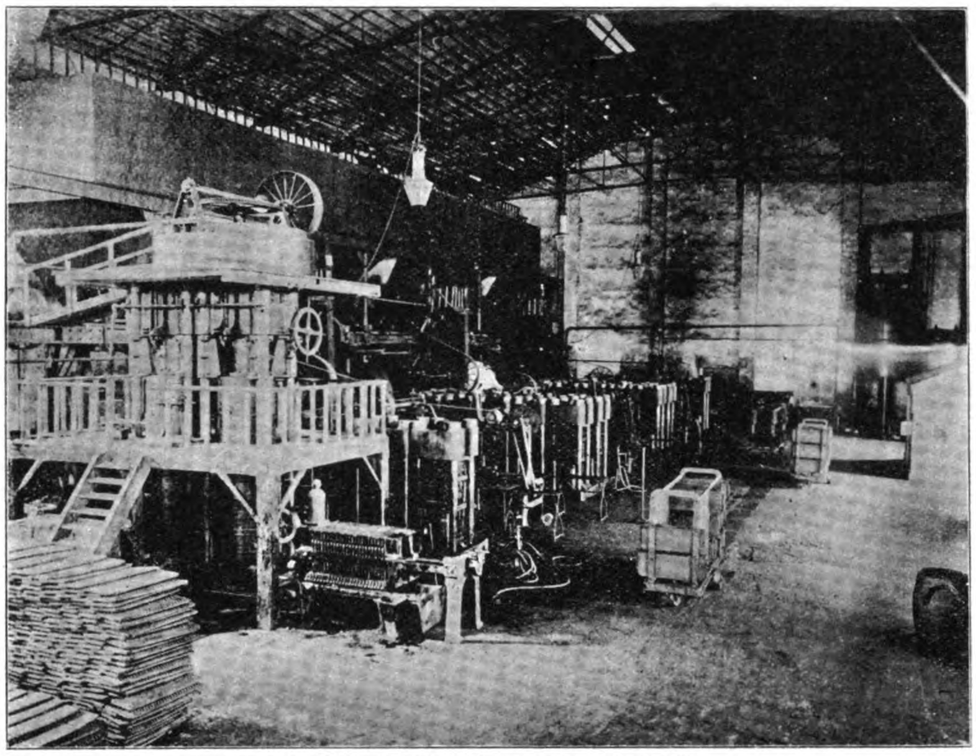


2 PAIRS OF "PREMIER" HYDRAULIC PRESSES



"KINGSTON" LOCOMOTIVE EXCAVATOR

is then drawn from the kettle, given a preliminary pressure in a moulding machine, in order that the press may admit the maximum amount of material and the moulded meal is then placed in the hydraulic press. When the press is fully charged, the pressure is applied by means of suitable hydraulic pumps and the oil is extracted. As the oil flows from the seed, it is pumped away to storage. The press is then emptied and recharged, the residue being in the form of cake. As a rule four Anglo-American Presses are worked together and form one set, and one gang of men are capable of keeping these four presses fully at work. This is the system followed when the small and simpler forms of seed are treated, such as linseed. For the other seeds, special processes are necessary, either in the preliminary working, or the subsequent operations. Many of the oil-bearing materials contain a very high percentage of oil, as for example cocoanut (copra), sesamum, castor, etc., and in order to recover all the available oil, it is essential that these be pressed twice. The first pressing may be conducted hot or cold, according to the quality of oil that is desired, cold-drawn oils of course being of a higher value. The first pressing as a rule is made in what are termed at home "Clodding" Presses, and we show an illustration of probably the largest presses known for this work. These presses represent the most up-to-date form of clodding of first-pressing presses. They are of most massive construction, and work at a pressure up to 3 tons per square inch of the ram. Probably our readers would be interested in a brief description of these Presses. On the top will be noticed the Kettle, in which the seed is tempered. (If the seed is to be pressed cold, then steam is not called into requisition.) Immediately underneath the kettle is a unique device for accurately measuring the quantity of seed to form one cake. By means of a forward and backward movement of a lever, the seed is drawn from the kettle, accurately measured, and fed to the press. A series of these movements thus charge these huge presses, each cake being separated from the next one by means of a steel plate. The extracting box or cake chamber is built up of steel bars having numberless perforations for the escape of the oil. The perforations are tapered, and thus no blocking up from the inside can take place. The bars in question are held in position by means of massive weldless steel rings, of ample strength for withstanding the working pressure. Towards the base and in the cylinder casing is a trough for collecting the oil as it is expressed. The hydraulic cylinder at the base of the press is constructed of cast-steel. When the operator has filled the press in the manner described, a loose head is run in taking up the opening above the cake box, and pressure is applied. As the oil leaves the seed, it is passed through the perforations, and drops down into the trough, and is forthwith pumped away to storage. This type of press has been specially designed for the treatment of the more oily classes of seed and nuts, and the cakes resulting from this pressing are broken up, reduced to meal again, and pressed again, either in similar presses or in presses of the Anglo-American type previously described. It might also be mentioned that a modification of the clodding or "Premier" press (as it is called by the manufacturers) is suitable for the production of the large round Bean Cakes so much in evidence in the north. The following illustration shows a large Oil Mill installation supplied by the firm in question to Egypt, and in the foreground will be seen a set of Premier Presses, with Anglo-American Presses filling the background. Messrs. Rose, Downs & Thompson are specialists in the manufacture of every type of machine and appliance not only for the preliminary treatment of the seed and the expression of the oil, but in addition they make all types of apparatus for the after-treatment of oils, such as refineries, filters, oil boilers, clarifiers, bleachers, etc.

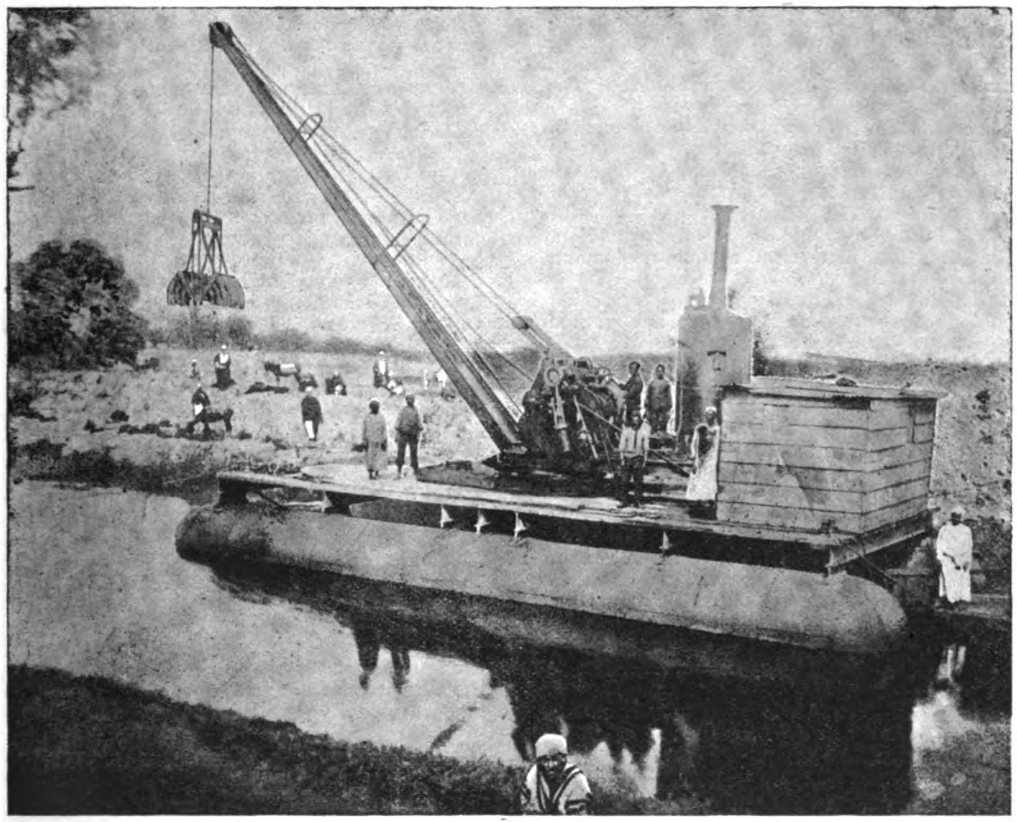


INTERIOR OF LARGE OIL MILL IN EGYPT

Machinery for the extraction of fish oil and appliances for the conversion of waste fish and fish offals into manure are also specialities of this firm.

They also manufacture installations for the production of cattle feeding cakes from non-oleaginous cereals, spices, etc. This form of food for cattle is very popular at home, especially during the winter months when the cattle cannot graze in the fields, and Messrs. Rose, Downs & Thompson have made the bulk of this class of machinery at present in use.

We also beg to call our readers' attention to the KINGSTON GRAB DREDGER and EXCAVATOR as shown in the accompanying illustrations. Messrs. Rose, Downs & Thompson, Ltd., are the sole manufacturers of this very useful appliance, for which there is a good demand in the East. This Dredger is particularly adapted to the following uses:—Dredging, deepening or cleansing harbors, rivers, canals, etc. Excavating new harbors, docks, railways and canals. Cutting trenches and laying pipes for sewerage purposes. Reclaiming waste lands. Top stripping mines. Sinking cylinders for bridges and piers. Laying concrete under water. Lifting wreckage, broken rock, concrete and bulk cargo. Discharging coal, sand, gravel, granite, ballast, lime, grain, etc., and it can be employed as an ordinary crane. This Dredger is made in various types, such as locomotive, portable and fixed, the latter suitable for bolting to the deck of a vessel, and the four sizes in which it is made have capacities varying from 30 tons to 120 tons of spoil excavated per hour. The Dredger is exceedingly simple to manipulate, one man being sufficient to attend to the whole of the requirements of one dredger, and the makers



"KINGSTON" GRAB DREDGE ON PONTOON WORKING ON RIVER NILE

claim for it many advantages over other existing dredgers and excavators of a similar nature. The grab can be worked to any depth, and can be used in odd corners or close alongside quay walls and amongst shipping, a decided advantage over the endless bucket type of dredger. Further, this machine is specially adaptable to working in shallow water and can, if desired, cut its own flotation The outlay for repairs is very trifling and instances are known where the cost of excavation including fuel, oil and waste, driver's wages, depreciation, repairs and renewals, interest on capital outlay, etc., do not exceed one penny per ton of material dredged. Further, the Dredger can be mounted upon any existing vessel or pontoon, and does not require a special vessel as does the bucket dredger. It is shipped in handy pieces and can be erected and put to work by any ordinary mechanic.

As we have previously mentioned, Messrs. Rose, Downs & Thompson, Limited, are now permanently established in the East, and any enquiries our readers may direct to them at 13, Nanking Road, Shanghai, will be attendde to immediately, and catalogues, estimates and all other information, that may be required, are at the disposal of anyone interested in the very important specialities manufactured by this firm.

PACIFIC TANK COMPANY

During the past few years there has been considerable change in the construction and hooping of Water, Oil, and Mining Tanks. The early methods provided for Tanks with tapered sides and driven hoops, hoops being riveted together and driven to place by the means of sledge and hoop set. The later and more modern method, however, has changed this construction, and practically all Tanks, especially on the Pacific Coast, with the possible exception of Tanks for the storage of Wine, are now manufactured with straight sides, and fitted with round soft steel hoops. These hoops are provided with a cold rolled up-set thread, each hoop being made in two or more sections and each section fitted with a malleable iron inline lug, which allows the hoop to be drawn in a parallel line.

The advantages of the new over the old method of Tank construction are that greater capacity can be procured without increasing the diameter of the Tank. In case of shrinkage or leakage, the hoops can easily be adjusted and the Tanks again made perfectly tight by screwing up the nuts on the rods at each lug, while in the old method, it was necessary to drive the hoops and often after a year or two's use, especially where they were once allowed to dry out, as in the case of wine making and storage Tanks, it was necessary to cut the hoops, re-rivet them, and then drive them to their original position. Another advantage of the round hoop over the flat is that it does not deteriorate as fast as the flat hoop as there is less metal exposed to the air.

It might be interesting to the readers of this paper to know that the Company's products are shipped to all known mining districts of the world. The Republic of Mexico being a near neighbor and a highly mineralized country takes a large portion of the manufactured product from their extensive mills located at San Francisco, California. Water, Oil, and Mining Tanks thickly dot nearly every state in the Mexican Republic, particularly the States of Sonora, Chihuahua, Durango and San Luis Potosi.

Costa Rica's demands are heavy, as well as Chili's and Peru's. The mines in the latter countries have long been worked by primitive methods, and large dumps of ore as well as many mines have been abandoned as the values were too small to pay for handling the material by the old methods, but now that new methods and the comparatively late success of the recovery of gold and silver values by the Cyanide Process have proven so efficient, the demands for the process have necessitated the shipment of a large number of Wooden Tanks (principally used for the process on account of their special adaptability for cyanide solutions) into these Spanish speaking countries. Their trade also extends into Nova Scotia, New Zealand, and South Africa, where the great value of the California Redwood Tank is known. Even the Philippine Islands, one of Uncle Sam's newest possessions, is calling for Redwood Tanks, while the Hawaiian Islands has been a good customer for years.

The Railroad development in China has created a demand for track Water Tanks, and the Pacific Tank Company have recently shipped a great many Tanks for this purpose into China, and consider the Chinaman a reliable and good man to do business with.

In addition to the large Tank Factory at San Francisco, the Company also have Plants at Olympia, Washington, and Los Angeles, California, but practically all their export trade is handled from the San Francisco Factory.

THE PAYNE BILL

The Payne Bill now occupying the attention of the United States Congress is the all absorbing question among the representative commercial bodies interested in Philippine trade with especial reference to the section which provides for free trade between the United States and the islands. So far it would seem that most of the opposition against the free entry of sugar and tobacco has been overcome and there is no reason to believe that the free interchange of the products between the United States and its dependency would not be approved by both houses with very little amendment.

This legislation would mean changing the Philippines from its present status, which is practically covered by the term "open door" to one of preferential trade relations with the United States. The foreign traders, who have built up trade with the islands on a basis of equal opportunity, are naturally interested in the outcome since it places them at a disadvantage with the American manufacturer, should the provisions of the bill affecting the islands become law. The measure of this disadvantage and its possible injury to foreign trade under the proposed bill is a matter of much difference of opinion.

Then there is the revision of the Dingley Tariff included in this most important legislation which must be considered in its relation to that part of the bill affecting the Philippines. As must be recognized, the American Congress has more interest in the revision of the Dingley Tariff than in the free trade feature of the Payne Bill. Indeed the main fight in Congress is on the revision of the Dingley Tariff and it is so intense that unless the trend to revise upward on the part of the Senate is not abandoned, there is reason to believe that the President will be obliged to veto the bill as evidence of his sincerity when he made his campaign promises regarding an early revision of the tariff downwards.

After the Senate completes its disfiguration of the original bill and it is referred back to the house for more manipulation, it will then go to conference. It is at this stage that every effort will be made by the President to have the bill fulfil the pledge of the administration. If he fails, then there is no other course for him to pursue than to use his veto power.

With this ending to the proposed legislation would go the prospect for some time of free trade between the United States and the Philippines, and therefore the present status of the "Open Door" would continue. And from indications, the prospect for the passage of a bill fulfilling the pledges of the administration is very remote at this writing.

Therefore, the Colton Bill which provides for a revision of the tariff now in force in the Philippine Islands is the measure that is immediately engaging the attention of American and European importers. There is no reason to believe that it will not become law in amended form, but until it goes on its final passage, the importer will be obliged to use the greatest discretion in his orders. The latest news from Washington is to the effect that the Colton Bill will become law about July 15 and that an amendment has passed the house making it effective sixty days after its passage. This amendment also provides that goods placed in bond prior to effective date may be withdrawn under new law. This relieves the situation and gives time for an adjustment so that the importers may minimize possible losses. The original bill provided that it would be effective on its passage.

FAR EASTERN COMPANY REPORTS

Selangor Rubber Co., Ltd.—This company has paid a dividend of 75% after writing off £1,000 for depreciation, placing £2000 in the reserve and carrying forward £2000.

The Ta Ching Government Bank.—The report of this institution covering the third year's profits was as follows:

Peking Office	Tls. 397,831.26
Tientsin	183,159.33
Shanghai	258,822.23
Hankow	122,728.46
Chinan	23,639.22
Changchikow	21,419.36
Mukden	620,302.91
Yingkow	314,377.72

After deducting current expenses and adding on the balance brought forward from last account, it shows a credit balance of Tls. 1,512,548.73 which it is proposed to deal with as follows: Amount to be brought forward to next year, Tls. 21,336.62; amount remains for appropriation Tls. 1,491,212.11, from which, in accordance with the memorial sent to the throne last year by the Board of Revenue, 20 per cent (Tls. 298,242.42), to be appropriated towards reserve funds; 2 per cent from what remains for remuneration for the management (Taels 38,593.93.) A dividend of 24 per cent per annum on old shares and 15 per cent on new shares to be paid.

The Star Ferry Co., Ltd.—The net earnings for the year amounted to $38,563, of which the following disposition was made: Repairs and Insurance account, $11,792; dividend of 10 per cent, $15,000.00; write off boats, $10,000.00; carry forward to new account, $3,121.43—$28,121.43.

Watkins, Ltd.—The net profit for the year was $12,000 and dividend was passed with promise for better results next year.

A. S. Watson & Co, Ltd.—At the annual meeting May 29th a final dividend of 30 cents was declared, making 60 cents for the year.

The Linggi Plantations, Ltd.—A final dividend of 40% making 60% for the year was the result of the year's work. Besides this £4,000 was placed in the reserve and £1,000 carried forward out of the year's profits.

The Federated Malay States Rubber Co., Ltd.—An interim dividend of 6% has been declared by this company.

The Consolidated Malay Rubber Estates Co., Ltd.—This company declared a final dividend of 12.5% making 17.5% for the year and carried forward £1,153 for the year.

Highlands and Lowlands Rubber Estates, Ltd.—This company paid a final dividend of 10% making 15% for the year with £6,000 forward.

The Anglo-Malay Rubber Co., Ltd.—This company has declared a final dividend of 20% making a total of 30% for the year and carried forward £12,571.

The Langkat Sumatra Rubber Co., Ltd.—This company paid a dividend of 5% for the year.

Simo Rubber Estates, Ltd.—This company has paid a dividend of 8% and carried forward £1,253,10s.

Japan-China Steamship Co.—The profit for the term amounted to yen 100,000, out of which the directors recommended the payment of a 2.5% dividend.

The Netherlands Trading Society.—This bank has declared a dividend of 8% for the year 1908.

The Tebong Rubber and Tapioca Estate, Ltd.—A dividend of 6% for the year 1908 was recommended by the directors of this company.

GOLDEN HOPE RUBBER ESTATE, LTD.—This company paid a dividend of 8% and carried forward £2,171.

GEORGETOWN DISPENSARY, LTD.—This company paid a dividend of 12.5% for the year.

PEAK TRAMWAYS CO., LTD.—This company paid a dividend of 8%, and added $15,000 to the reserve.

THE CANTON-HANKOW RAILWAY.—The follow-lowing is the report of the railway for the year 1908:

Month	No. of Working days.	No. of Passengers carried.	Gross Receipts dollars.
1st Moon	30	89,447	9,775.78
2nd "	29	76,972	10,615.34
3rd "	29	88,767	13,447.80
4th "	30	73,854	10,966.26
5th "	27*	99,915	13,729.07
6th "	29	68,026	10,427.40
7th "	30	78,047	12,276.63
8th "	29	97,915	14,731.74
9th "	30	89,263	14,032.06
10th "	30	93,019	15,499.32
11th "	29	96,924	18,881.42
12th "	30	119,217	22,809.87

(* Service suspended on the 23rd, 24th and 25th days on account of the flood.)

It will be seen that 1,071,726 passengers were carried during the year and the gross receipts amounted to $167,202.69. Out of this, wages, etc., absorbed $39,825,948 leaving a credit balance of $127,376.742, which, with $619,254 from the previous year's account, $228.52 from the Works Department on subsidiary coins, $42.80 from the passengers for breaking windows, etc., and £15 rent of ground at Wangsha, makes the grand total of $128,282,316.

The sum of $128,000 has been transferred to the General Account and the sum of $282,316 is left as working expenses.

THE VARADERO DE MANILA.—The following is the balance sheet of the company submitted for the year 1908:

RESOURCES

Plant	₱546,162.61
Small boats and launches	27,525.66
Bills receivable	114,861.68
Machinery in course of construction	8,433.59
Warehouse	225,845.07
Lorchas	10,095.26
Shares on deposit	13,500.00
Cash on hand	12,600.62
Total	₱959,024.49

LIABILITIES

Capital Stock	₱450,000.00
Depositors of Shares	13,500.00
Reserve fund	119,845.23
Voluntary reserve fund	165,667.86
Loss and Gain %	134,000.39
Bills payable	46,712.98
Mortgages	250.00
Dividends Pending	13,348.50
Due Banco Español-Filipino	15,699.53
Total	₱959,024.49

THE SHANGHAI ELECTRIC AND ASBESTOS CO LTD.—The following is the report of the directors, submitted at the annual meeting for the year:

The profit and loss account shows a net profit for the twelve months of $20,361.40 which, with the amount carried forward from last year, viz., $2,657.68, gives a total of $23,519.08. This sum your directors propose to allocate as follows:

Pay a dividend of 8 per cent	10,000.00
Add to Reserve Fund, this bringing same up to $15,000.00	5,000.00
Increase reserve for doubtful debts, making the reserve fund under this heading $5,500.00	2,500.00
Write off Furniture and Fixtures for depreciation	838.33
Write off Steam Launch *Electric* for depreciation	1,500.00
Carry forward to next year's working	3,680.75
	23,519.08

DIRECTORS.—Mr. W. C. Murray retires by rotation, but is willing to serve again if re-elected.

AUDITORS.—The accounts have been audited by Messrs. A. R. Leake & Co. now amalgamated with Messrs. Lowe, Bingham and Matthews, who offer themselves for election as Auditors for the ensuing year.

W. D. LITTLE, *Chairman.*

The annual meeting of the Shanghai Electric and Asbestos Co., Ltd., took place yesterday afternoon in the Company's office No. 11a Nanking Road. Mr. W. D. Little presided and the others present were Messrs. J. Frost, A. Hide, W. C. Murray, Directors; R. W. MacCabe, Secretary; O. L. Ilbert, Thomas Weir, E. W. Clement, and H. Browett.

The Chairman said:—

We recommend a dividend of 8 per cent, the same as last year. I regret, however, that you have had to wait for this instead of receiving a portion by w y of interim dividend after the usual half yearly balance, as heretofore, but at that time we had a heavy overdraft with our Bankers. You will see from the account that at the end of the year we had worked to a credit; however, at the moment we are again overdrawn. The fact is with a growing business we want a little more working capital.

The company was started in 1903 with a capital of $100,000; on the 14th July, 1904, an extraordinary general meeting passed Resolutions to the effect that the capital be increased to $200,000 by the creation of 4000 new shares but that only 1000 of such shares be then issued, the remaining 3000 to be issued and disposed of by the board from time to time and upon such conditions as the Board in their discretion shall deem advisable. Our paid-up capital is now $125,000; we propose to issue as soon as the time is propitious a further 1000 shares bringing the capital issued up to $150,000. The necessity of carrying considerable stock absorbs our funds. I referred to this position last year and trusted that we should be able to reduce the amount so locked up but unfortunately that does not seem possible. For our stock you will observe is valued at a sum just slightly in excess of our capital. We recommend placing $5000 to reserve, bringing that account up to $15,000, and that certain amounts be written off various accounts as detailed in the Report.

During the six years of the Company's existence to February 28, 1909, we have paid away:

Dividends	$54,549.50
Bonus to Staff	7,000.00
Created a Reserve account of	15,000.00
A special reserve for bad and doubtful debts of	5,500.00
And written off various accounts	22,329.45
	$104,378.95

which shows, I think, a satisfactory working. We had a set back in 1906 owing to the defalcations of the Secretary at that time. For the year ending 31st March, 1907, we had to pass our dividend but wrote off the whole of the late Secretary's defalcations and the expenses connected therewith, amounting to $7,757.46 and carried forward to the new account $2,326.98. We are now in new premises in a most suitable location for our business and with, I hope, a good year before us.

There were no questions asked and the first resolution, proposed by the Chairman and seconded by Mr. Murray, that the report and statement of accounts as printed be adopted, was put to the meeting and carried.

Mr. Clements moved that Mr. Murray be re-elected a Director of the Company and that the appointment of Mr. A. Hide as Director be confirmed. Mr. Ilbert seconded.

In regard to this resolution Mr. Little explained that they asked authority to confirm the appointment of Mr. Hide who had been invited by the Directors to take the seat on the board vacated by Mr. E. C. Pearce some six or seven months ago when he went home. He took this opportunity of thanking Mr. Pearce on their behalf for the work he had done for the Company.

The resolution was unanimously carried.

Mr. Browett moved the appointment of Messrs. Lowe, Bingham, and Matthews as auditors of the Company for the current year, which was seconded by Mr. Ilbert and agreed to.

The meeting concluded by a vote of thanks to the Directors and staff for the good results of last year's working, which Mr. Browett proposed.

THE PATALING RUBBER ESTATES SYNDICATE.—At the recent annual meeting this company authorized a final dividend of 32.5% making 45% for the year. Larger dividends are in prospect for the coming year.

SANDYCROFT RUBBER CO., LTD.—At the fifth ordinary meeting of this company a dividend of 25% was directed paid, $20,000 placed in the reserve, $650 transferred to employees' bonus account, and a balance of $1,275.77 carried forward.

THE SHINAGAWA WHITE BRICK COMPANY.—The following accounts were submitted and distribution of profits made at the last half-yearly meeting:

Net receipt	21,677
Brought from previous accounts	1,910
From reserve	11,000
Total	34,587
To legal reserve	1,100
Bonus	1,500
Dividend (10% per annum)	31,250
Carried forward	737

THE TOBU RAILWAY CO.—The following accounts were submitted and distribution of profits made at the last half-yearly meeting of this company:

	Yen
Net receipt	94,247
Brought from last balance	23,706
Total	117,953
To reserve	4,750
Dividend (7% per annum)	92,750
Carried to next account	20,453

NATIONAL BANK OF CHINA, LTD.—The gross profits of this institution, including $10,223 brought forward from former term, amounted to $265,389. After deducting all charges there was $180,552 available out of which $150,000 was placed in the reserve and the balance carried forward.

HODEN OIL CO.—The following report was submitted and distribution made at the last half-yearly meeting of this company:

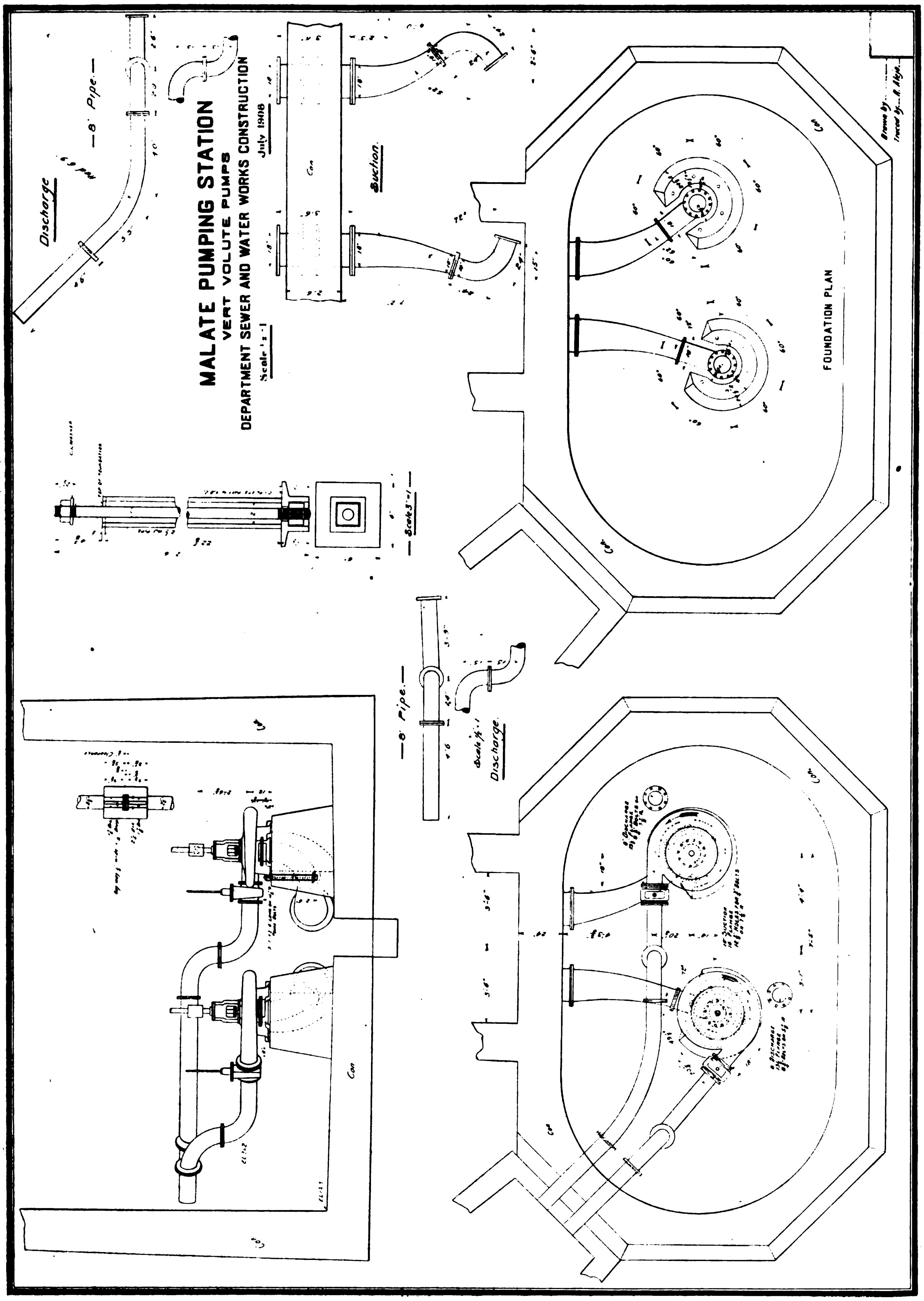
	Yen
Total receipts	2,398,429
Disbursements	794,013
Net profit	1,604,416
Carried over from previous account	300,301
Total	1,904,717
To legal reserve	100,000
Sinking fund	100,000
Dividend to shareholders (30 per cent per annum, viz. yen 7.50 per old share; yen 3.70 per new share)	1,372,500
Bonus to staff	75,000
Carried forward	257,216

THE MINOMO ARIMA RAILWAY CO.—For the last half year this company has paid a dividend of 5% per annum.

MEIJI FIRE INSURANCE CO.—Of yen 220,458 available a dividend of 20% was paid the shareholders, yen 5,200 awarded bonus to the directors and the remainder carried forward.

THE HANSHIN ELECTRIC RAILWAY CO.—This company has paid a dividend of 12.5% per annum for the last half year.

JAPAN FIRE INSURANCE CO.—At the last general meeting of this company a dividend at the the rate of 15% per annum was directed paid.

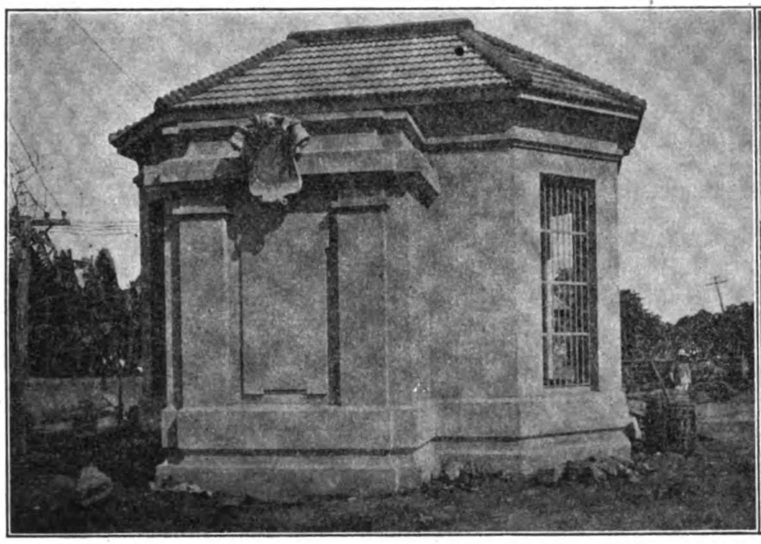

MALATE PUMPING STATION
VERT VOLUTE PUMPS
DEPARTMENT SEWER AND WATER WORKS CONSTRUCTION
July 1908
Discharge
8' Pipe
Suction
FOUNDATION PLAN
Discharge
8' Pipe

MANILA'S SEWERAGE SYSTEM

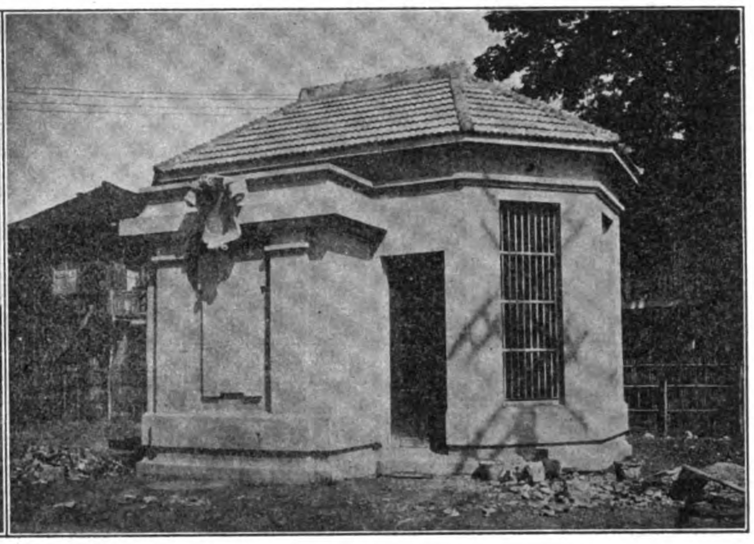
By Mr. O. L. INGALLS, C. E.*

The sewerage system of Manila, which is now nearing completion, dates from September 23rd, 1903, when the writer was directed by the Municipal Board to institute an investigation and a study of conditions in Manila with a view to designing such a system as would be best suited to the wants of the city. From that date the writer has been continually employed on the work in question, first in designing and preparing an estimate of cost, next in preparing plans and specifications upon which bids were invited, and lastly engineer in charge of construction

At this time I take pleasure in stating that the system has been installed in its entirety practically as originally planned and at a cost slightly less than was originally estimated.† The sewerage system, which is about to be turned over to the city completed and ready for use, may be of sufficient interest to warrant a brief outline of the work accomplished in its installation and also of the work it is intended to perform.



PACO PUMPING STATION



MALATE PUMPING STATION

As is doubtless well known to the citizens of Manila, the sewerage system as designed and built provides for the removal of sewage only, leaving the question of storm water disposal to be considered with the canalization of the esteros.

The sewers range in size from 8 inches to 5.75 feet in diameter and have been laid with slopes sufficient to warrant a velocity of not less than 2.5 feet per second when flowing one-half full, a velocity which will insure the removal of all substances likely to find lodgement inside.

The topographical features of Manila are such that natural conditions for drainage are entirely wanting, and in order to secure the required velocity of flow it was found necessary to create the requisite slopes by beginning the lines of sewer as near the surface of the ground as possible and increasing the depths and sizes as they advanced to a point where it was deemed unwise to go deeper. At these points, therefore, the sewage is raised by means of pumps suitably arranged in pumping stations and again allowed to flow at shallower depths for a considerable distance before again resorting to the necessity of raising the sewage for the same reason. In many of the remote parts of the city the sewage passes through at least three pumping stations before it finally reaches the waters of the bay.

The sewers of Manila have been laid at a minimum depth of 5 feet and at a maximum depth of 18 feet to the bottom inside. The minimum depths afford ample clearance to all water mains and storm water sewers and give sufficient depths for a satisfactory service to all abutting property. The maximum depth of 18 feet was believed to be about the limit at which it was practical to construct sewers at a reasonable cost in Manila. All sewers of the city have been laid upon a concrete foundation and great care has been exercised in the jointing of all pipes to insure watertight work. The workmen, although working under the most unfavorable conditions at all times, often standing in mud and water nearly to their knees, yet even under those disadvantages, all sewers have been laid with a perfect alignment and are practically watertight. This condition is most remarkable considering the many unfavorable conditions that prevailed much of the time. I believe I am perfectly safe in stating that there is not a city in the United States having a sewerage system operated under water as it is in Manila, where the infiltration of ground water approaches in insignificance the quantity found in the sewers of this city. The object of excluding all seepage water from the sewerage system is to prevent excessive cost in the operation of the sewer pumps, for all ground water entering the sewers must be pumped one or more times as it is discharged into the bay, and a leak once started can almost never be chalked after the sewers have been put in operation

The sewerage of Manila, as has already been stated, must necessarily have some assistance in its flow from the remote parts of the city to the main pumping station located at the foot of Calle Azcarraga on the North side of the Pasig River and at the same time have a sewer with a greater depth than 18 feet to the bottom inside. This assistance has been afforded by the construction of five so-called lift pumping stations, three of which are located South and two North of the river, besides the main station

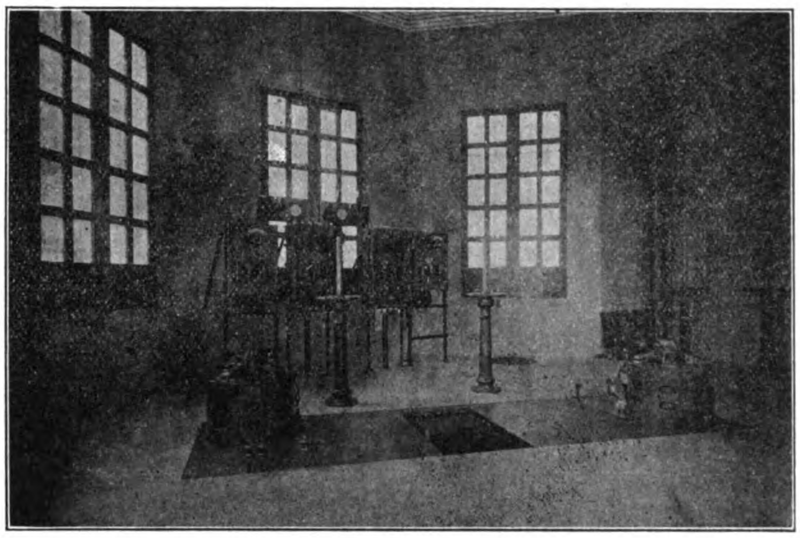
SANTA CRUZ PUMPING STATION

ERMITA PUMPING STATION

*Chief Engineer in Charge of New Sewerage System of Manila.

†The original estimates placed the total cost at $1,762,327.50 U. S. Currency, while the amount expended does not exceed $1,650,000 U. S. C.

at which the sewage is collected, elevated approximately 26 feet and discharged into the bay through a 42" cast-iron force main laid ten feet below the bed of the bay, at a point 6,500 feet from shore in line with the outlet to the Pasig River. The other pumping stations have lifts of approximately five feet except the one in Ermita where the lift is about nine feet.



INTERIOR SANTA CRUZ PUMPING STATION

To one unfamiliar with the details of the work, the thought of crossing the Pasig River and the numerous esteros with lines of sewers might at first seem a little hazardous. This has been accomplished no less than twelve times, and in each case with great difficulty but with excellent results. The use of the inverted syphon has been resorted to on several occasions by means of cast-iron pipes in order that a suitable depth might be secured so as not to interfere in any way with navigation. The river crossing, which is about 700 feet long, consists of a double line of 24" cast-iron pipe with alternate flexible and flanged joints. The result has been an unique construction and a well-executed piece of work. The top of this double line of 24" pipe rests at a depth of 24 feet below the surface of the water at low tide and will always have a covering of at least 6 feet below the bed of the river, which is believed to be ample protection from injury of any kind. This pipe was laid from barges in lengths of 12 feet, jointed and bolted by means of divers working at a depth of 24 feet from the surface. This pipe has a greater depth than any other part of the sewerage system and is subjected to considerable water pressure, yet the leakage amounts to almost nothing.

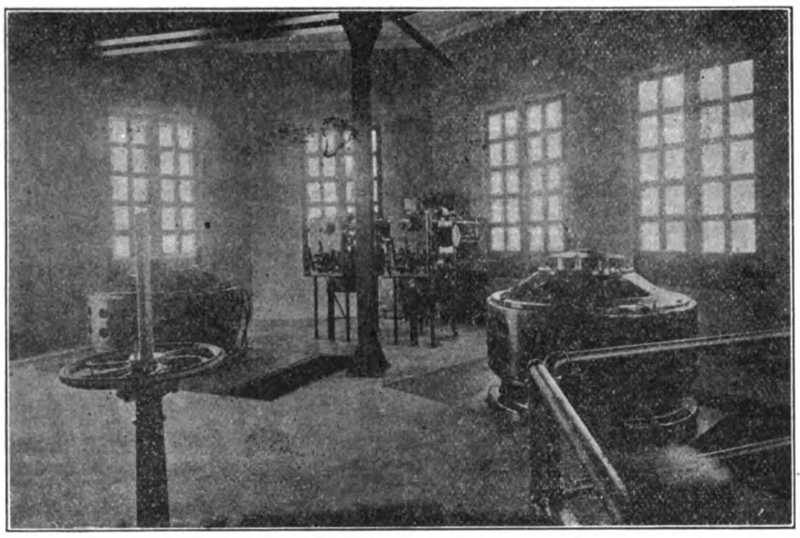
The 42" cast-iron outfall pipe was laid in a dredged channel upon a pile and cap foundation. The piles were driven in bents of two each at 9 foot intervals while at the outlet end the pipe makes a quarter turn and terminates in a vertical position. This arrangement was made necessary in order that the discharge would take place above the bottom of the bay. This outlet end is encased in a huge block of cement masonry which in turn rests upon the timber platform supported by a group of piles.

Provision has been made for the introduction of house connections in all the lines of sewer, generally at intervals of about 40 feet. These branches have been provided with standpipe on all deep lines of sewer so that the maximum depth of excavation for each connection will be less than six feet. These terminals were carefully located while exposed in the trench and can be reproduced wherever desired for use.

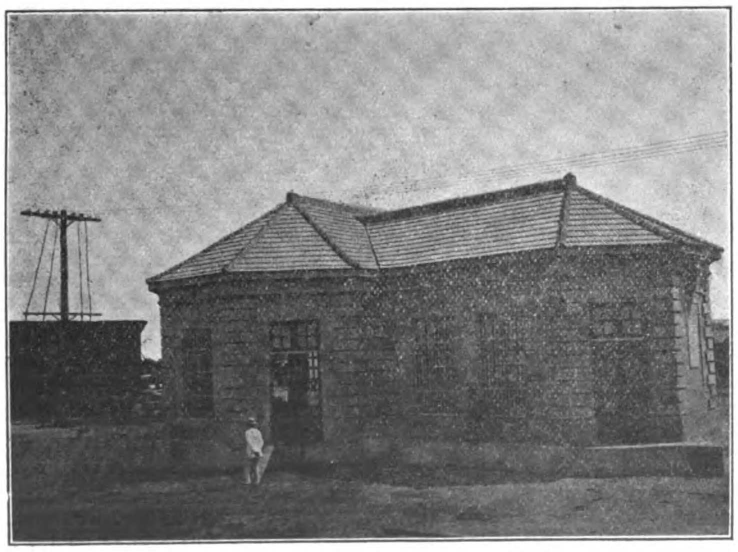
Manholes have been built at intervals of about 300 feet along the sewers for the purpose of making proper inspections, cleaning, if necessary, and the removal of obstructions if such occur. These manholes are provided with tight covers to prevent the introduction of mud and storm water and the possible escape of objectionable odors.

The sewers will be satisfactorily ventilated by omitting the vent trap and continuing the soil pipe and vent stack of each house connection full size through and above the roof. This arrangement will necessitate care in inspection to see that pipe joints in houses are made airtight and that all fixtures are carefully trapped and properly ventilated

Flush tanks with suitable connections to the water system supply have been constructed at the ends of the primary lateral sewers for the purpose of keeping them clean and in satisfactory condition These tanks have been built to hold about 350 gallons of water each and are provided with gates and handles for operation by hand. The system of flushing introduced in Manila is somewhat unique and, so far as I am aware, has never been tried elsewhere.



MAIN PUMPING STATION, INTERIOR



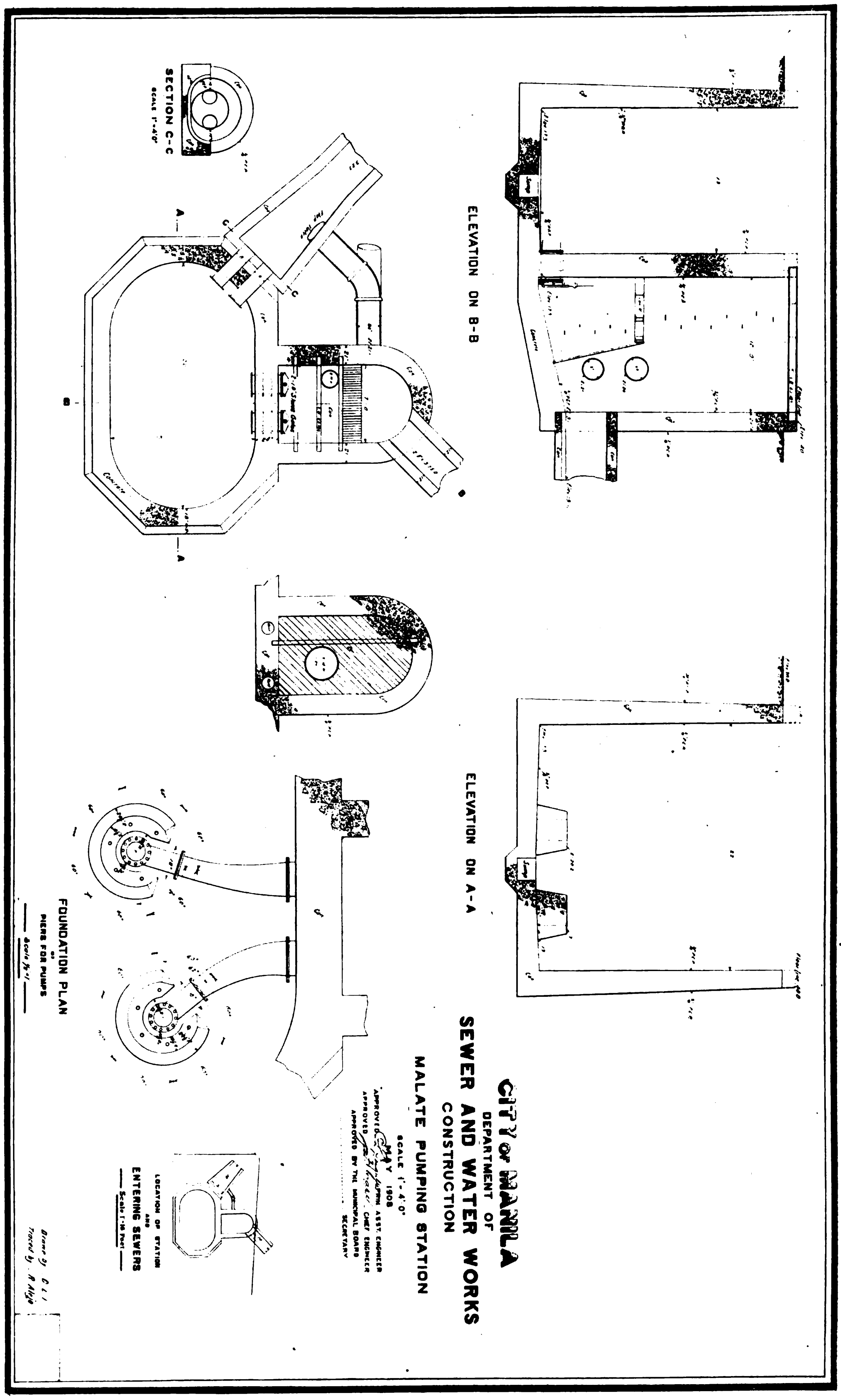
MAIN PUMPING STATION, EXTERIOR

Excellent results will unquestionably be obtained by this method of flushing and at the same time less water will be consumed in the operation and at less cost than by any other method.

The class of machinery and the kind of power available for operating the six pumping stations was a question that required much study and resulted in the selection of centrifugal pumps electrically driven by power to be furnished by the Manila Electric Street Railway and Light Company.

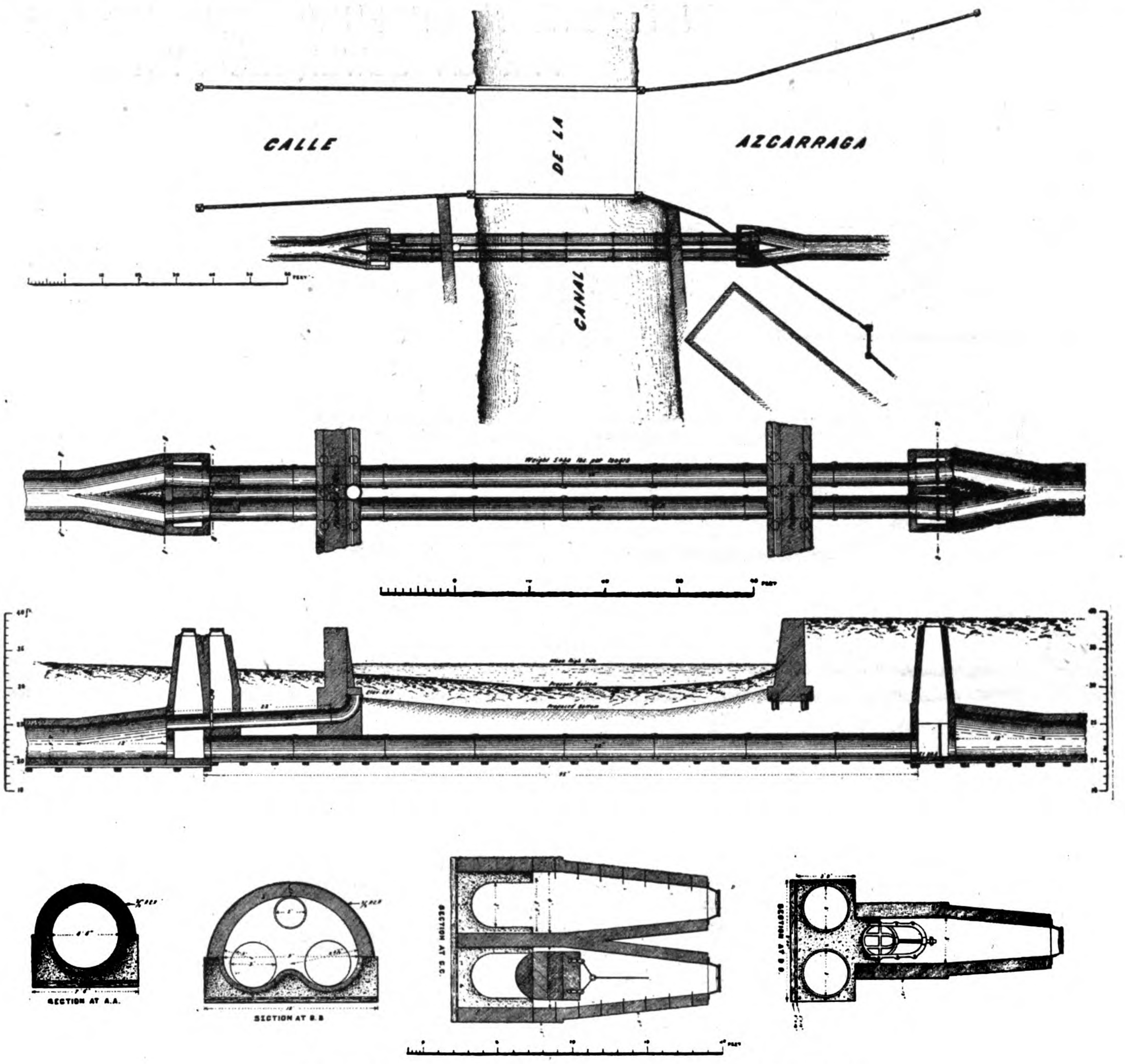
All stations have been provided with pumps and motors in duplicate to guard against delays in operation due to possible accidents to the machinery.

The arrangement of the pumps and motors in all stations is similar except that in the main station the pumps and motors are directly



MALATE PUMPING STATION

GENERAL PLAN OF MANILA'S SEWERAGE SYSTEM



CROSSING OF ESTERO DE LA REINA REGENTE AT CALLE AZCARRAGA

connected by means of a vertical shaft while in the smaller stations, for the sake of economy, the pumps are connected to the motor by means of a vertical shaft and gear. All pumps are located below the surface in dry pits easy of access and always ready for use without priming.

All pumping stations are so arranged that in case of interruption to the machinery from one or any cause, the sewage after rising a short distance inside the sewers will be by-passed and continue moving to the next station and pass out as though nothing had happened And if for any cause all the pumps should be out of operation for a day or two, provision has been made to allow the sewage to rise in the sewers to the elevation of the water in the bay when it will be discharged by gravity through overflows provided, thereby causing no inconvenience or particular concern to any of the inhabitants of the city.

In concluding this article, I wish to state that the city of Manila has been provided with a sewerage system designed with mathematical accuracy, capable of extension far beyond the present limits and of sufficient capacity to accommodate a city of 500,000 people and yet capable of perfect operation even while serving a population forming a small part of that number. The cost of operation will always be in direct proportion to the amount of sewage contributed.

The completion of this system is of vast importance to the health of the community and it is to be hoped that the inhabitants of the city will not delay in availing themselves of a blessing that cannot be over estimated.

THE INSTALLATION OF MANILA'S NEW SEWERAGE SYSTEM

The completion of the excavation work and the installation of the Manila sewer system on May 25th, when it was turned over by the contractors, the Atlantic, Gulf and Pacific Co., just five weeks in advance of contract time, gave to the capital of the Philippines one of the most modern and effective systems in operation in any city of its size in the world.

Bids were advertised for on August 1st, 1905, for the excavation work, supplying and laying the pipe, etc., and the bids were opened on January 12th, 1906. The contract was awarded the Atlantic, Gulf and Pacific Company and the price was approximately ₱3,000,000. The contract called for the completion of the work involved on July 1st, 1909. The first sewer was laid in July, 1906.

Some idea of the magnitude of the contract may be gathered from the fact that the excavation alone represented 340,000 cubic yards and the iron pipe used weighed 2,400 tons and made 8,500 lineal feet. Of this there were 6,260 lineal feet of 42" pipe used for the outfall and sewer in the bay and the balance of from 8" to 24". The concrete used in this construction was represented by 40,000 cubic yards and in this work over 50,000 barrels of Green Island Cement was utilized. All the main sewer was constructed of concrete as were over 900 manholes and 265 flush tanks for flushing the entire system. The length of the main sewers is approximately eight miles built in egg shape as indicated in illustration.

Over 2,000 cubic yards of brick masonry were laid in the manholds in which over 1,200,000

bricks were utilized. The terra cotta pipe laid covers in all over 225,000 lineal feet or about 40 miles varying from 8" to 24" in diameter

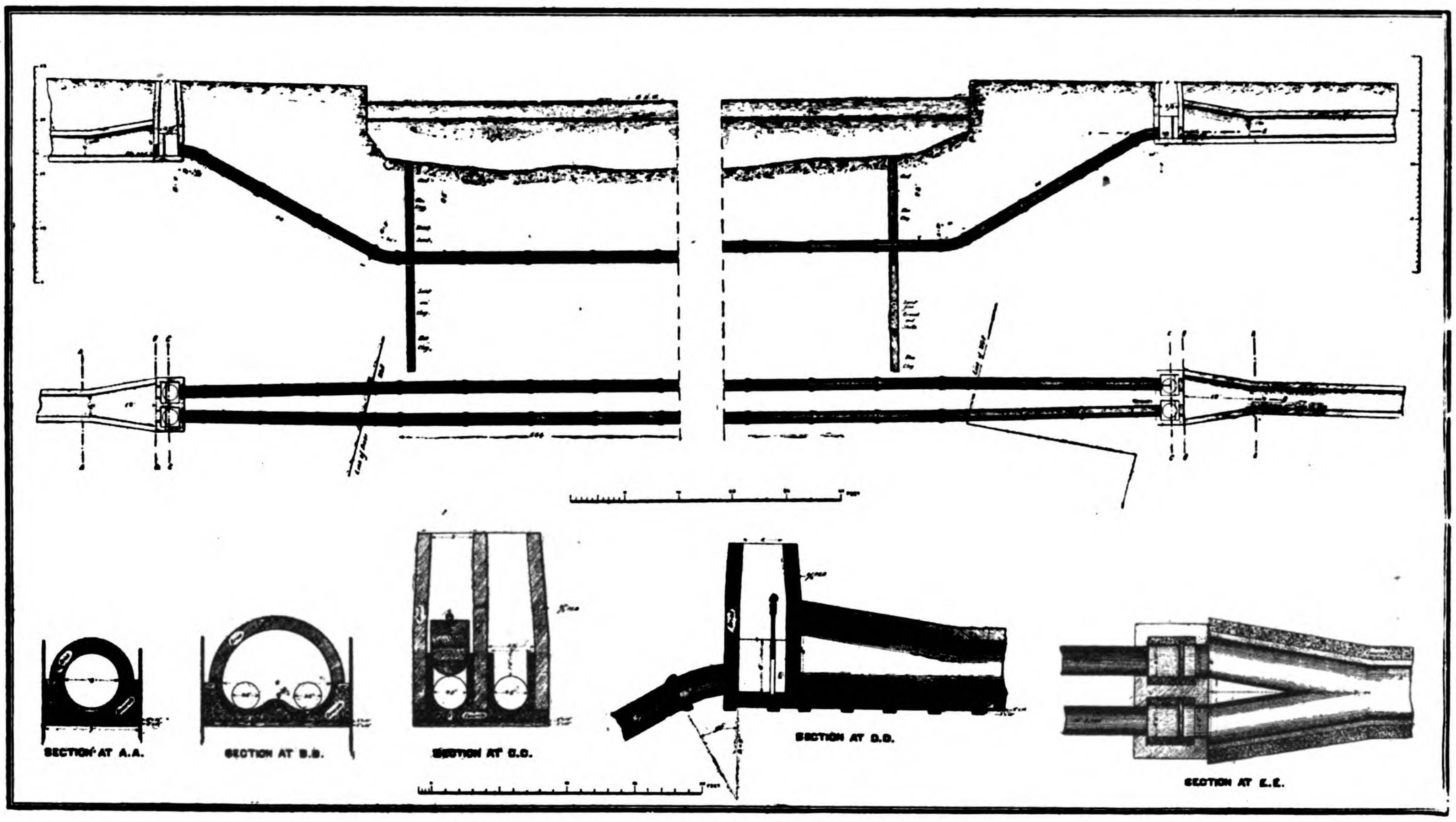
For bracing the excavations alone, the company utilized over 1,000,000 feet of lumber which gives some idea of the extensive operations under way at one time throughout the city in order to make headway, meet every requirement of the contract and at the same time not impede traffic in the city streets.

The labor used was Filipino under American supervision. The average number on the payroll was 2,250 daily during the operations. The supervising force comprised of from 20 to 40 American foremen according to the arrangement of the operations and the progress of the work towards completion. While there were usually double the number of laborers on the payroll than represented the number actually working every day, not a few reported for work every day during the three years.

Great credit is due Mr. F. E. Foster, Superintendent for the Atlantic, Gulf and Pacific Company, for his able direction of the operations which was responsible for the very satisfactory installation and that it was also completed in record time.

As one engineer of prominence stated in regard to the character of this installation "I firmly believe that the sewer system, as completed, is today tighter than any laid in the word of equal size."

The Atlantic, Gulf & Pacific Company also constructed the different pumping stations which came under separate contract. The price was $71,500 U. S. Currency.



CROSSING UNDER PASIG RIVER HEAD OF CALLE NUMANCIA

PHILIPPINE GOLD OUTPUT FOR MAY

The Paracale Gold Dredging Company, 572 ounces.

The Benguet Consolidated, 218 ounces bullion and 78 pounds cyanide.

INSTALLATION OF PUMPS AND MOTORS FOR MANILA SEWERAGE SYSTEM

The contract for the supplying of twelve electrically driven pumps and twelve motors and installing them in six pumping stations of the new Manila sewer system was awarded to Mr. Frank L. Strong of Manila. The bids were opened on January 15th and the contract awarded January 30th, after a close competition. The price was $53,600.00. In awarding the bid Major Case, who has charge of the work, recommended to the municipal board that the bid of Mr. Strong—the only one under the highest bid that complied with the specification as to date of completion—be accepted.

The electric current supplied for operating the motors is as follows: Alternating current; 220 volts; 2-phase 4-wire 60 cycles.

Station.	Lift.	Gallons per twenty-four hours.	Pumps. Number.	Pumps. Size.	Motors. Number.	Motors. Horse-power.
	Feet.	Each.		Inches.		
Main........	25	25,000,000	2	24	2	150
Ermita......	10	5,000,000	2	12	2	15
Santa Cruz..	5	12,000,000	2	18	2	15
Quiapo......	5	5,000,000	2	12	2	10
Malate......	5	2,400,000	2	8	2	7½
Paco........	5	800,000	2	5	2	5

The main station receives the sewage from the sub-stations, and with a lift of 25 feet it flows out into the harbor through a pipe 6,000 feet long.

As each of the two pumps at the main station has a capacity of 25,000,000 gallons daily, which is far in excess of present requirements, Manila is assured of adequate sewage disposition for many years to come.

The bids submitted follow:

The Atlantic, Gulf & Pacific Co., $66,850.00, Westinghouse Motors and Bryan Jackson Pumps.

Frank L. Strong, $53,600.00, General Electric Motors and Henry R. Worthington, New York, Pumps.

Findlay & Co., $49,250.00, Westinghouse Motors and Worthington Pumping Eng. Co., London, Eng.

Germann & Co., $46,995.00, General Electric Motors and Morris Pumps.

De Oilier Engineering Co., $35,780.00, their own goods.

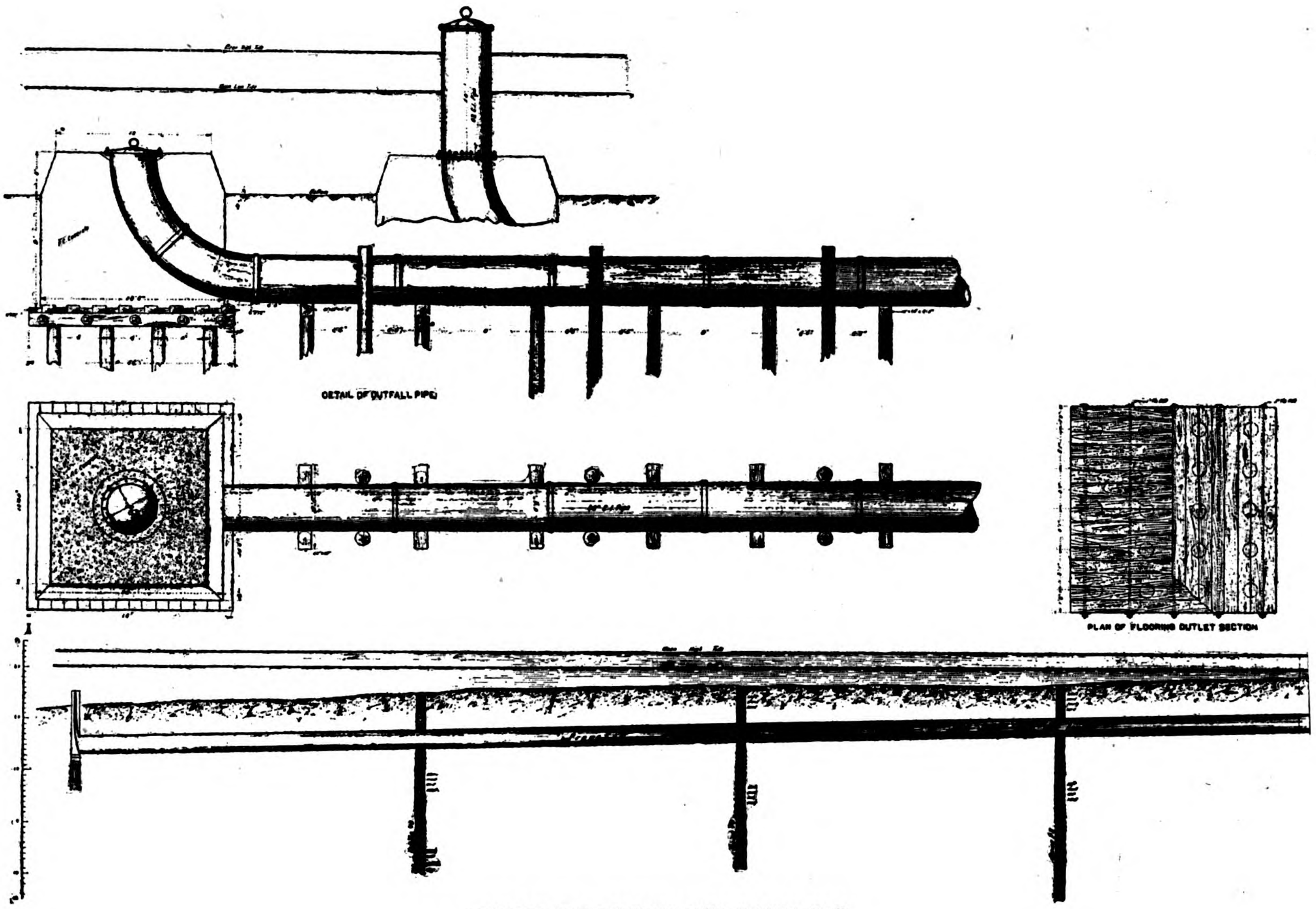
Frank L. Strong, the successful bidder, is one of the oldest American engineering contractors in the Philippines and representative of the General Electric Co. of Schenectady, New York, and associated with him is Stuart S. Harvey, special eastern representative of Henry R. Worthington, New York, the famous pump manufacturer, and who has been active in the Philippines for the last eight years.

While the specifications called for two motors for the main station of 150 h. p. each Mr. Strong's bid provided for two motors of 155 h. p. and these latter were installed.

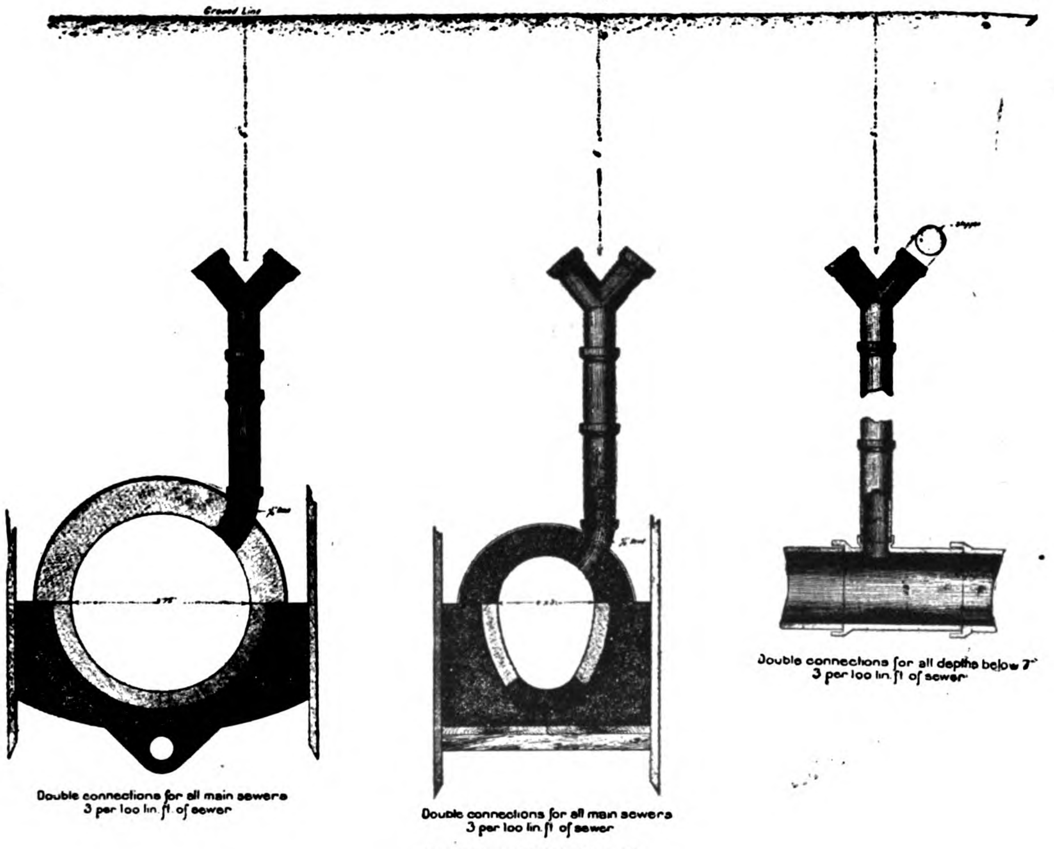
Special features of the installation.—In the substations of Paco, Malate, Ermita, Quiapo, and Santa Cruz each motor is supplied with an automatic switch for starting and stopping it. This switch is actuated by a float which rises and falls with the sewage, automatically, giving current to the motor when the screen chamber fills above a given point, and falling as the chamber is emptied stops the motor when the desired level is reached.

The 155 horse power motors at the main station run at the same speed as the pumps, and are connected directly to the pump shafts. As the smaller motors of the substations run at a much higher speed than their pumps, the reduced pump speeds are obtained by installing gears and pinions between motor and pump. The accompanying illustration shows these gearing arrangements.

The City of Manila may be congratulated on having their sewage system operated by



OUTFALL PIPE LEADING INTO MANILA BAY



HOUSE CONNECTIONS

machinery of the latest approved type, and exactly similar to that installed in leading cities of the United States. One of the most notable of these installations is that in the City of New Orleans, and on a very much larger scale. Buffalo, N. Y., and that of the St. Louis World's Fair are among other installations of the same type in recent years.

The names of the manufacturers of the various parts on the outfits are a sufficient guarantee of their high grade and excellence, and are as follows:

MOTORS AND SWITCHBOARDS.—General Electric Co., Schenectady, N. Y.

PUMPS.—Henry R. Worthington, New York City.

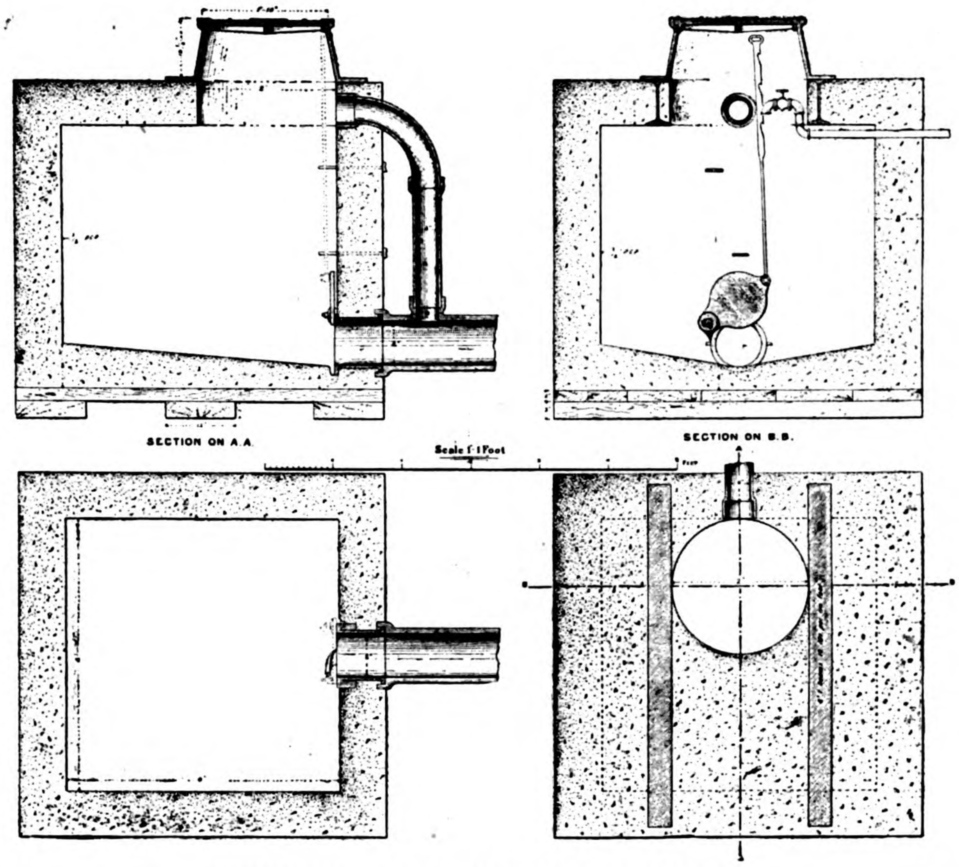
GEARING AND CONNECTIONS.—A. & F. Brown Co., Elizabethport, N. J.

VALVES.—Ludlow Valve Mfg. Co., Troy, N. Y.

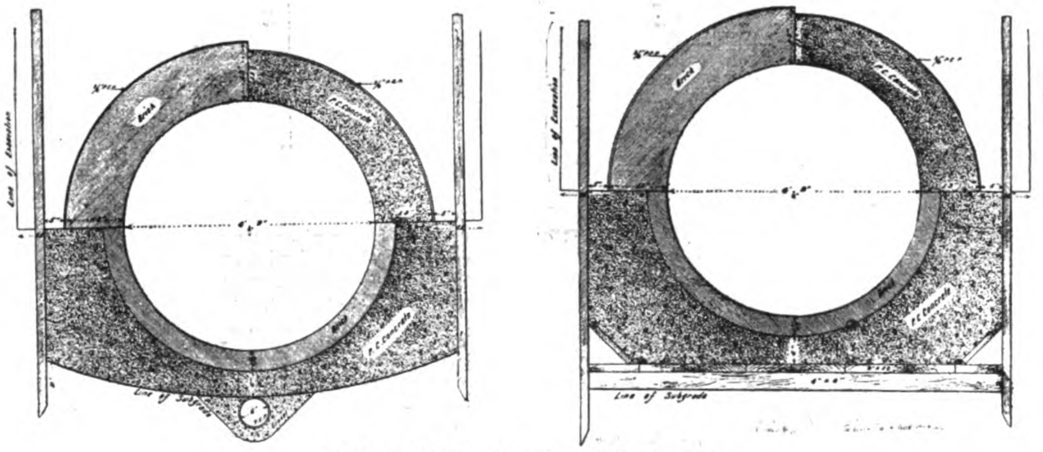
PIPE AND FITTINGS.—John Simmons Co., New York City.

It is of interest to note that the pipe and valves are of large size, especially at the Main station, where a single valve weighs more than four tons.

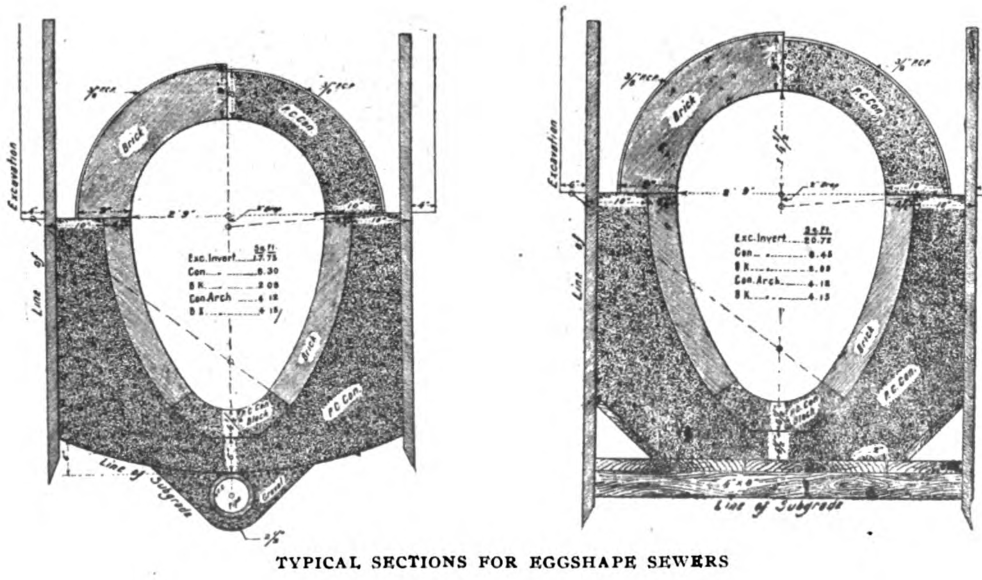
Various unexpected delays were experienced by the city in obtaining title to certain locations for the plants, involving legal processes, making it impossible to prepare the buildings and the machinery foundations for the contractor at as early date as anticipated. As soon as any one station was ready for the installation of the machinery, the work of placing it was at once commenced and diligently prosecuted to completion. The care and understanding with which the contract was drawn by the Engineer in Chief is evidenced by the fact that no changes whatever were made during the installation, and not one dollar of extras was charged the City.



TERMINAL MANHOLE AND FLUSH TANK COMBINED



TYPICAL SECTIONS FOR MAIN SEWERS



TYPICAL SECTIONS FOR EGGSHAPE SEWERS

VERTICAL CENTRIFUGAL PUMPS SUPPLIED BY HENRY R. WORTHINGTON CO., NEW YORK, MAIN STATION.—Total lift including suction, static head, and frictional head, 25′ (feet), capacity of each pump twenty-five million (25,000,000) gallons per twenty-four hours. For handling these conditions two twenty-four inch Worthington Pumps of the vertical shaft volute type, having a single bottom suction opening and enclosed impeller, were selected. These pumps are arranged with a pair of couplings at the top center for connecting to vertical shaft running direct to the rotator of motor. The size of the pump shaft is 4½″ diam. and each pump weighs approximately 17,000 lbs.

ELECTRICAL EQUIPMENT FOR OPERATING CENTRIFUGAL PUMPS FOR THE MANILA SEWER SYSTEM, MAIN STATION.—The installation in this station consists of 2-Type IQ-20 pole, 155 H.P., 350 R.P.M., 220 V. two-phase 60 cycle alternating current vertical type induction motors arranged for direct connection to 24-inch vertical centrifugal pumps, each motor being complete with starting compensator. For controlling the motors, 2-induction motor starting panels are installed and for controlling the incoming power 1-600 amp. lever switch is included.

The station is equipped with a ten ton Triplex Block manufactured by Messrs. Yale & Town Mfg. Co. for lifting motors and pumps.

SANTA CRUZ STATION, PUMPS.—The total head in this instance, including suction lift, station head, and frictional head, is five feet and the capacity of each of the two pumps installed is twelve million gallons per 24 hours. The pumps are 18-inch volute and of the vertical and bottom suction type. The weight of each pump is 11,000 pounds.

SANTA CRUZ STATION, ELECTRICAL EQUIPMENT.—This station is equipped with 2-Type IQ, 10 pole, 17 H.P., 720 R.P.M., 220 V. Form "K" two-phase 60 cycle vertical type alternating current induction motors arranged for gearing.

For controlling the above motors there are 2-induction motor starting panels and for controlling the incoming current, 1-60 amp. lever switch.

QUIAPO STATION, PUMPS.—In this station the specifications called for a five foot lift, including suction lift, static head, frictional head, and the capacity of each pump is five million gallons per 24 hours. Two 12-inch pumps driven by 10 H.P. motors with a pump speed of 200 R.P.M. have been installed.

QUIAPO STATION, ELECTRICAL EQUIPMENT.—This station is equipped with 2-Type IQ, 8 pole, 10 H.P., 900 R.P.M., 220 V. Form "K" two-phase 60 cycle vertical type alternating current induction motors arranged for gearing to 12″ vertical centrifugal pumps.

For controlling the above motors there are 2-induction motor starting panels and for controlling the incoming current, 1-30 amp. lever switch.

ERMITA STATION, PUMPS.—In this station the total head including suction lift, static head, and frictional head is 10 feet, and the capacity of each pump five million (5,000,000) gallons per twenty-four hours. Two twelve inch pumps are installed with fifteen brake horse power each, and are of the vertical and bottom suction type. The speed required is one hundred and fifty R.P.M. full load.

ERMITA STATION, ELECTRICAL EQUIPMENT.—This station contains 2-Type 1-Q, 10 pole, 15 H. P., 720 R.P.M., 220 V. Form "K" two phase 60 cycle vertical type alternating current induction motors arranged for gearing to the pumps.

For controlling the above motors there are 2-induction motor starting panels and for controlling the incoming current, one 60 amp. lever switch.

MALATE STATION, PUMPS.—Each pump installed has a capacity of two million four hundred thousand (2,400,000) gallons per twenty-four hours, and are described as two

MR. FRANK L. STRONG, M. E.

8-inch vertical volute pumps each weighing about 2900 lbs. Each pump runs at a speed of 260 R.P.M.

MALATE STATION, ELECTRICAL EQUIPMENT.—This station contains 2-type 1Q, 8 pole, 7½ H.P. 900 R.P.M., 220 V. two-phase 60 cycle vertical type alternating current induction motors arranged for gearing.

For controlling the above motors there are installed 2-induction motor starting panels and for controlling the incoming power one 30 amp. lever switch.

PACO STATION, PUMPS.—Two five inch pumps with a capacity for each pump of eight hundred thousand (800,000) gallons per twenty-four hours and of vertical volute type are installed here. These pumps are furnished with thrust bearings and coupling at the top of pump and with suction and discharge flanges drilled. Each pump weighs about 1700 lbs. and the full load speed is 385 R.P.M.

PACO STATION, ELECTRICAL EQUIPMENT.—This station contains 2-type 1Q, 8 pole, 5½ H.P. 900 R.P.M., 220 V. Form "K" two phase 60 cycle vertical type alternating current induction arranged for gearing to pumps.

For controlling the above motors there were furnished 2-induction motor controlling panels and for controlling the incoming line one 30 amp. lever switch.

GENERAL DESCRIPTION OF THE WORTHINGTON VERTICAL VOLUTE CENTRIFUGAL PUMP FOR MANILA SEWERAGE SYSTEM.—The pumps are of the vertical shaft volute type having a single bottom suction and enclosed impeller.

CASING.—The main casing is of strong close grained cast iron volute in form and of proper thickness to withstand all stresses incident to normal service. The side plates consist of removable covers of cast iron making a male and female fit with the casing and fastened thereto by means of suitable bolts. The general design is such as to facilitate the removal of the internal parts for examination and repairs.

IMPELLER.—The impeller is constructed of cast iron and of the enclosed type having single bottom suction with balancing chamber, thereby reducing the end thrust to a minimum. It is cast in one piece and machined and polished on the outside. The cored water passages are filed and chipped smooth thus insuring a high efficiency. The impeller is in perfect rotative balance mounted on a shaft with all moving parts.

SHAFTING.—The shaft is of machine steel accurately machined and polished. It operates in babbitted bearings. Where necessary the stuffing boxes are provided with water seals consisting of a lantern gland in the box connected by means of suitable piping with the pressure water on the discharge side of the pump. This method of sealing effectually prevents suction air leaks and is essential to the successful operation of the pump where excessive suction lifts are encountered. The shaft is a close fit in the impeller hubs and is provided with a shoulder against which the impellers are held by means of a nut on the suction side.

THRUST BEARING.—A suitable thrust bearing is provided to support the weight of the revolving pump parts.

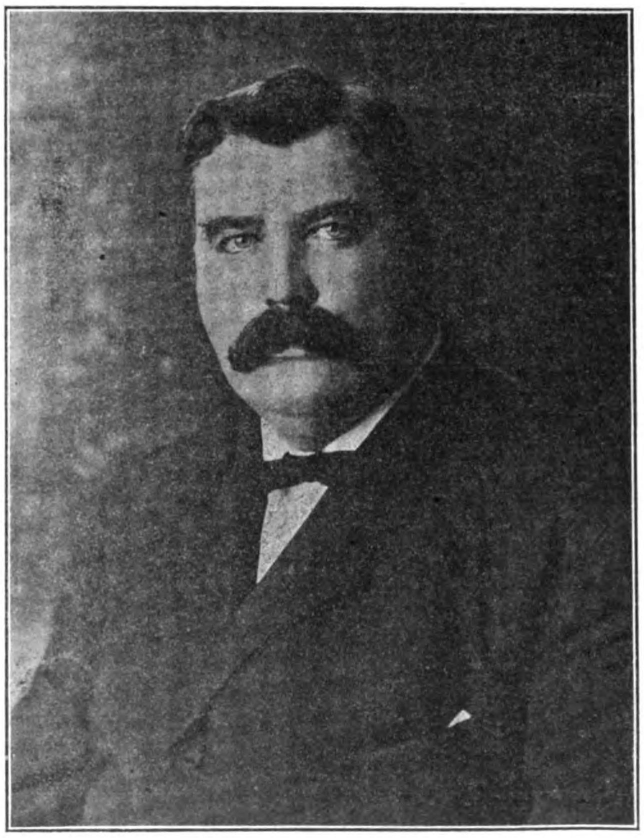
GENERAL WORKMANSHIP.—Every part and detail of the pump is of first class material and workmanship. All flanges are carefully faced and properly bolted. All nuts subject to frequent removals have been case hardened.

GENERAL ELECTRIC COMPANY'S INDUCTION MOTORS CLASSIFICATION.

	Type	Poles	H. P.	Speed RPM	Form	Volts	Cyc. per Sec
1	IQ	10	15	720	K	220	60
2	IQ	10	17	720	K	220	60
3	IQ	8	10	900	K	220	60

ARRANGEMENT AND APPROXIMATE WEIGHTS

	ARRANGEMENT		WEIGHT PER MORTOR lbs.		
	Connection	No. Bearings pully	Stator with end frame	Rotor base, etc	Motor Complete
1	Geared	2	790	260	1050
2	Geared	2	790	260	1050
3	Geared	2	470	145	615



MR. STUART S. HARVEY

GUARANTEES.

	% Slip	Momentary Overload	Frac. of Load Efficiency %	Fraction of Load Power factor %
1	4½	75	Full 85	Full 76
2	5	75	Full 84	Full 78
3	4	75	Full 85	Full 78

All Vertical Shaft.

INDUCTION MOTORS CLASSIFICATION.

	Type	Poles	H. P.	Speed RPM	Form	Volts	Cycles per Sec
1	IQ	8	7.5	900	K	220	60
2	IQ	8	5.5	900	K	220	60
3	IQ	20	155	360	K	220	60

ARRANGEMENT AND APPROXIMATE WEIGHTS.

	ARRANGEMENT Connection	No. Bearings pully	WEIGHT PER MOTOR lbs. Stator with end frame	Rotor	Motor base, etc. Complete
1	Geared	2	450	130	580
2	Geared	2	275	90	365
3	Direct	2	7720	2670	10390

GUARANTEES.

	Slip %	Momentary Overload %	Frac. of Load Efficiency %	Frac. of Load Power Factor %
1	4	75	Full 83	Full 80
2	4	75	Full 83	Full 79
3	3	100	Full 87	Full 79

All Vertical Shaft.

INSULATION TESTS.—The insulation between primary winding and core stands a test of 1000 volts, alternating current for one minute.

TEMPERATURES.—After run at rated voltage, frequency and load, the temperature of no part is more than 40° C. above that of the surrounding air, nor more than 55° C. after two hours at 25% overload. These temperatures are taken by a thermometer and are based on the assumption that the temperature of the air is 25° C. If it differs from 25° C. the rise in temperature should be corrected ½% for each degree C. that the room temperature differs from 25° C. continuous.

GENERAL DESCRIPTION.—The stationary member, or stator, is primary, the rotating member, or rotor, secondary.

The general construction is as simple as possible consistent with thorough reliability and satisfactory operation. All work on these machines indicate high class workmanship, and the design and finish of the machines produces a neat and suitable appearance.

STATOR.—The stator frame is so proportioned that the laminations and winding are supported with practically no deviation from a perfect circle. The greater part of the outer surface of the core is freely exposed, thereby obtaining the most effective ventilation.

The core is built of the best grade of thin sheet iron provided with slots on the inner circumference to receive the windings. Eddy currents are prevented by coating the laminations with japan.

The windings consist of copper conductors thoroughly insulated before being assembled, and held firmly in place by means of wedges driven into grooves in the teeth.

The insulation consists of layers of fabric treated with a special insulating compound. The quality of the insulation is such that no deterioration will take place when subject to mean temperatures, neither will it be prematurely injured if exposed to dampness. In the event of any winding being injured, it can be readily removed and another substituted by removing a few adjacent windings.

ROTOR. The rotor consists of a cast iron spider which forms the framework to support the core and windings and is mounted on the shaft.

The spider is made from the best quality of cast iron so designed as to hold rigidly in place the magnetic core and windings.

The magnetic core is composed of the best quality of laminated iron, soft, and thoroughly annealed, and of a high permeability. The laminations were completely japanned before being assembled in order to prevent eddy current losses. The laminations are clamped together by means of bolts which pass outside the core and not through it.

The windings consist of copper bars placed in the slots and short-circuiting rings at each end of core. These bars are fastened tightly in place and the over-hanging portion of the teeth serve to prevent their being displaced by centrifugal force.

The shaft consists of one piece of forged steel, accurately finished to gauge.

BEARINGS.—The bearings are self-oiling and have ample surface to insure cool running. The oil reservoirs are capable of holding a liberal supply of oil, and convenient gauges for indicating the height of the oil, and outlets for drawing it off are provided. There is also an easy means for examining the oiling device in operation.

END FRAMES.—The bearings are supported in end frames of cast iron bolted to the stator frame. The arrangement of bolts and joints is such that the end frames can be easily removed and the rotor taken out for examination or repairs. The end frames do not interfere with the free examination of the air gap.

METHOD OF STARTING.—The starting current may be cut down by means of the starting compensator connected in the primary circuit, which acts as a transformer. The compensator is furnished with a switch having one position for starting and another for running. It is further provided with several sets of taps from its windings, any one of which can be connected to the switch, thus making it possible to start the motor with a small or large torque and current.

INDUCTION MOTORS, DIMENSIONS

Type	Poles	H.P.	R.P.M	Volts.	Diam shaft	Width	Height over all.	Height less shaft.
IQ.	10	15	720	220	2"	24	35.5	31
IQ.	10	17	720	220	2	24	35.5	31
IQ.	8	10	900	220	1.75	19.5	34.5	30
IQ.	8	7.5	900	220	1.75	10.5	33.5	29
IQ.	8	5.5	900	220	1.50	17.5	28.5	25
IQ.	20	155	360	220	5.5	64	70	65

SWITCHBOARDS.—The panels are of natural black slate; all instruments have dull black finish; switches furnished with necessary card-holders, and the panels are mounted upon pipe supports.

Switchboard to control:

2—220 V. 5½ (A) H.P. 2-phase 60 cycle form "K" induction motors.

2—220 V. 7½ (A) H.P. 2-phase 60 cycle form "K" induction motors.

2—220 V. 10 (A) H.P. 2-phase 60 cycle form "K" induction motors.

2—220 V. 15 (A) H.P. 2-phase 60 cycle form "K" induction motors.

2—220 V. 17 (A) H.P. 2-phase 60 cycle form "K" induction motors.

2—220 V. 155 (A) H.P. 2-phase 60 cycle form "K" induction motors.

Switchboard consists of:

12—Individual induction motor panels.

2—Induction motor panels, 2 phase 60 cycle. Capacity 220 V. 5½ (A) H.P. Size 28 × 16 × 1½", on supports 64" high.

Equipment for each panel:

1—20 amp. type "R" ammeter with 20 amp. scale.

1—Mounting for compensator.

1—4 P.S.T. 2500 V. 100 amp. K-3 automatic oil switch, (main) on back of panel, with operating mechanism, and low voltage release and resistance.

2—Induction motor panels, 2-phase, 60 cycle. Capacity 220 V. 7½ (A) H.P. Size 28 × 16 × 1½", on supports 64" high.

Equipment for each panel:

1—30 amp. type "R" ammeter with 30 amp. scale.

1—Mounting for compensator.

1—4 P.S.T. 2500 V. 100 amp. K-3 automatic oil switch, (main), on back of panel, with operating mechanism and low voltage release and resistance.

2—Induction motor panels, 2-phase 60 cycle. Capacity 220 V. 10 (A) H.P. Size 28 × 16 × 1½", on supports 64" high.

Equipment for each panel:

1—30 amp. type "R" ammeter with 30 amp. scale.

1—Mounting for compensator.

1—4 P.S.T. 2500 V. 100 amp. K-3 automatic oil switch, (main), on back of panel, with operating mechanism, and low voltage release and resistance.

2—Induction motor panels, 2-phase 60 cycle. Capacity 220 V. 15 (A) H.P. Size 28 × 16 × 1½", on supports 64" high.

Equipment for each panel:

1—60 amp. type "R" ammeter with 60 amp. scale.

1—Mounting for compensator.

1—4 P.S.T. 2500 V. 100 amp. K-3 automatic oil switch, (main), on back of panel, with operating mechanism and low voltage release and resistance.

2—Induction motor panels, 2-phase 60 cycle. Capacity 220 V. 17 (A) H.P. Size 28 × 16 × 1½", on supports 64" high.

Equipment for each panel:

1—60 amp. type "R" ammeter with 60 amp. scale.

1—Mounting for compensator.

1—4 P.S.T. 2500 V. 100 amp. K-3 automatic oil switch (main), on back of panel, with operating mechanism and low voltage release and resistance.

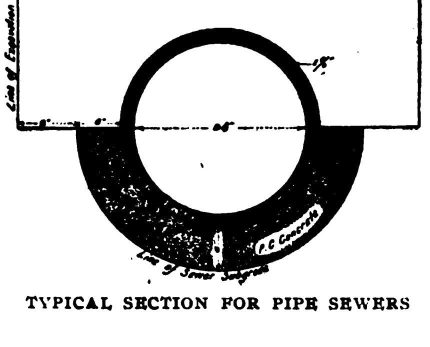
2—Induction motor panels, 2-phase 60 cycle. Capacity 220 V. 155 (A) H.P. Size 28 × 20 × 1½", on supports 64" high.

Equipment for each panel:

1—4 amp. type "R" ammeter with 500 amp. scale.

1—4 P.D.T. 4500 V. 500 amp. K-3 automatic oil switch, (main and starting), on panel, with low voltage release and resistance, and 1—4 P.S.T. 4500 V. 100 amp. K-3 non-automatic oil switch (magnetizing) on framework, with operating mechanism.

2—600 amp. D-20 current transformers.



TYPICAL SECTION FOR PIPE SEWERS

CONTRACTING NEWS

EIGHT WOODEN LORCHAS FOR U. S. QUARTERMASTER'S DEPARTMENT, MANILA.—There were eight bidders, the lowest of which was Mr. Fred Wilson, Manila, ₱29,150. The other bidders were: The Cadwallader-Gibson Company, Manuel Earnshaw and Company, Juan Rodriguez, C. B. Williams, Wong Tid Company, Cho Chung Lung, and Varadero, all of Manila.

MANILA ARMY AND NAVY CLUB BIDS.—Delmar Smith, ₱213,000; R. M. Loper, ₱214,000; and the Atlantic, Gulf and Pacific, ₱221,200.

MANILA DEPOT COMMISSARY STORES.—Bids will be opened June 25th for the supply of 600,000 pounds of rice, 7,680 cans of jam, 200,000 pounds of granulated sugar, 30,000 pounds of butter, 3,600 cakes of glycerine soap, 35,000 bottles of effervescent water, etc.

CONTRACT FOR TRANSPORTING U. S. ARMY MEATS.—This contract has been awarded the Eastern and Australian Steamship Company.

U. S. QUARTERMASTER'S STEVEDORING CONTRACT AT MANILA AWARDED.—This contract has gone to the Luzon Stevedoring Company. There were four bidders.

STEEL FOR U. S. QUARTERMASTER.—The following bids were opened for the furnishing of reinforcing steel: California Manila Lumber Commercial Co., Trussed Concrete Steel Co.'s cup bars ₱66.28 per ton of 2000 lbs., Hy-Rib ₱15.70 per 100 square feet; Findlay & Co., Twisted steel $1.94 per 100 lbs; Frank L. Strong, corrugated bars $1.815 and $1.925 per 100 lbs; H. W. Peabody & Co., corrugated bars $34.64 and $36.74 per ton of 2000 lbs; Atlantic, Gulf & Pacific Co., corrugated bars ₱0.0372 per lb.

FURNITURE FOR THE UNITED STATES ARMY.—The contract for the manufacture of 800 dining chairs, 2,400 side chairs, and 400 sideboards was awarded the Cadwallader-Gibson Lumber Co. This company manufactures the well-known Gibson furniture. The contract represents about $60,000. The prices were: dining room chairs, $5.45, other chairs, $4.45, and sideboards, $29.45 each.

SHANGHAI MUNICIPALITY, CEMENT.—Tenders for the supply of Portland Cement in such quantities as may be required to be opened by the Council June 28th.

SHANGHAI MUNICIPAL COAL CONTRACT.—The Mitsui Bussan Kaisha secured the contract at Tls. 6.25 per ton for the year. The other bidders were: Messrs. Johnsen, and Herlofsen Shimoyamada, Tls. 5.60; Sander, Wieler & Co., Otokiri gomi, Tls. 6.50; F. Caissial & Co., Takaye, Tls. 7.00; Ohnour, Tls. 6.80; Yahsia, Tls. 6.50; Mitsui Bishi Co., Hojo, Tls. 7.00 and one irregular.

U. S. NAVAL SUPPLIES.—Bids were opened June 1st covering the supply of over half a million dollars worth of supplies as follows: Castle Brothers-Wolf and Sons were the only bidders for supplying 1,700,000 lbs. fresh frozen beef, 80,000 pounds of mutton and 50,000 pounds of veal. The figures for beef delivered at Cold Stores, on lighter in Manila Bay, and at Cavite being .1850, .18 and .19 centavos per pound, respectively; mutton .1590, .155 and .165, respectively; veal .2690, .25 and .26 centavos, respectively.

Bids were also opened for 300,000 pounds of beans, 30,000 lbs. tea, 150,000 lbs. rice, 30,000 lbs. sauerkraut, 20,000 lbs. corn meal, 15,000 lbs. cream cheese tinned, and 10,000 lbs. fresh.

Ah Gong bid: beans .15 ctvos. lb., tea .85, rice .0635, sauerkraut .15, corn meal .20, cream cheese, tinned and fresh .60.

Castle Bros.-Wolf & Sons bid to deliver at Manila and Cavite, respectively, as follows: beans .114 and .115, tea .538 and 685, rice .0462 to .05, sauerkraut .137 and .135, corn meal .171 and .169, cream cheese tinned .56, .65, and .558, .6487, cream cheese fresh .43 and .428.

The Manila Import Co. bid on tea for Manila del .55, and Cavite .52 lb., and on rice .0477.

Holliday, Wise and Co. bid only on rice at .0424 per pound. Rosario Vizcarra bid on a number of samples of tea, his prices ranging from 50 to 66 centavos per pound; rice .0489.

Sprungli and Company bid .559 on tinned cheese and .435 on fresh.

The bids tendered for the supply of 600,000 pounds of granulated cane sugar were received from Findlay and Company and Castle Bros.-Wolf and Sons, both firms submitting prices for delivery at Cavite, Manila and at Hongkong, and in cases and sacks, as follows: Findlay & Co. in cases, at Cavite, Manila and Hongkong: .0873, .08695 and 081, per pound, respectively, and in sacks .071, .07067 and .067. Castle Brothers' lowest bids for delivery in cases at Cavite, Manila and Hongkong, were .0895, .088 and .086, and in sacks .0746, .0721 and .07.

Bids were also opened for 200,000 pounds of Australian butter as follows: Castle Bros., .695 and .665 per pound; Holliday, Wise and Company .637, and Sprungli and Company .709.

On 10,000 fire brick the bids, with prices per hundred brick, were as follows: Rosario Vizcarra ₱13; Fred Wilson ₱9.25 and ₱9.50; Ker & Co. ₱9.50 and ₱9.85: Findlay & Co. ₱9.49; Macondray 3,500 only at .10½ ea.; J. Parsons ₱9.90 and Wm. H. Anderson ₱100 for the lot.

CAST IRON PIPE AND SPECIALS, CITY OF MANILA.—Bids were opened June 10th for the supply of 7,000 tons of cast iron pipe, hub and spigot pattern; 46 tons of 20 inch flexible joint and flange cast iron pipe; two tons of flanged cast iron pipe and about 200 tons of specials, and the contract awarded the Atlantic, Gulf and Pacific Company. The price was $227,000 U. S. Currency. The pipe will be supplied by Messrs. Macfarlane, Strong & Co. of Glasgow.

IMPERIAL TIENTSIN-PUKOW RAILWAY.—Steel plate girders to be delivered on wharf at Pukow during the month of May, 1910. Quotations in sterling and received by Managing Director at Nanking not later than June 20th, 1909:

12 Spans of Deck Girders, 12 feet clear span;
8 Spans of Deck Girders, 20 feet clear span:
150 Spans of Deck Girders, 30 feet clear span;
30 Spans of Deck Girders, 50 feet clear span;
8 Spans of Deck Girders, 75 feet clear span.

IMPERIAL-TIENTSIN-PUKOW RAILWAY.—Rolling Stock for Southern Section. To be delivered at wharf, Pukow, in January, 1910. Tenders addressed Managing Director, Nanking, to be opened June 25, 1909.

For 100 High Sided Wagons (30 tons); 100 Low Sided Wagons (30 tons); 50 Covered Goods Wagons 20 tons).

Also eight tender locomotives 2-6-0 type, cylinders 19"×24". Coupled Wheel 5'-0" diameter. Working pressure 180 lbs. With six wheel-tenders.

The locomotives and tenders to be delivered on the railway wharf at Pukow; four locomotives to be delivered during the month of April 1910, and the remaining four during the month of August 1910.

Tenders should be addressed to the Managing Director, Tientsin-Pukow Railway, Southern Section, Nanking. They will be opened at 10 a. m. on Tuesday, the 29th June, 1909.

OFFICE OF THE MUNICIPAL BOARD.—Manila, P. I., February 15, 1909.

Sealed bids or proposals will be received by the secretary of the Municipal Board, Manila, P. I., until 12 o'clock m., July 1, 1909, for furnishing gate valves, air valves and fire hydrants for the city of Manila, Philippine Islands.

The total amount to be furnished will be approximately one hundred and sixty (160) gate valves, twenty (20) air valves, and three hundred and twenty-five (325) fire hydrants

Specifications, general plans, and blank forms of proposal may be obtained at the office of the secretary of the Municipal Board, Manila, P. I., or from the Chief of the Bureau of Insular Affairs, Washington, D. C.

Each proposal must be accompanied by a certified check for three thousand dollars ($3,000), United States currency, drawn on a local bank; or a bond in like amount, signed by a fidelity insurance company, authorized to give such bond in the Philippine Islands, as a guaranty that the bidder, if awarded the contract, will, after due notification, promptly enter into contract and furnish an acceptable bond in the sum of twenty (20) per cent of the sum total of the contract price for the faithful performance of the work.

The right is reserved to reject any or all bids.

H. L. FISCHER,
Secretary of the Municipal Board.

J. F. CASE,
Chief Engineer, Department of Sewer and Waterworks Construction.

IMPERIAL TIENTSIN-PUKOW RAILWAY.—Tenders invited, to be opened June 21st, 1909, by the Managing Director at Nanking. China, for the furnishing free of all charge at the wharf at Pukow, not later than December 31st, 1909, Steel Plate Girders as follows:

26 Spans of Deck Girders, 12 feet clear span;
12 Spans of Deck Girders, 20 feet clear span;
60 Spans of Deck Girders, 30 feet clear span;
12 Spans of Deck Girders, 50 feet clear span;
2 Spans of Through Girders, 50 feet clear span;
3 Spans of Deck Girders, 75 feet clear span;
3 Spans of Through Girders, 75 feet clear span.

Quotations in sterling and bids must be presented on or before June 20, 1909.

PROPOSALS FOR CONSTRUCTION OF SIX STEAM LAUNCHES.—Headquarters Philippines Division, Office of Chief Quartermaster, Manila, P. I., May 20, 1909. Sealed Proposals, in triplicate, subject to the usual conditions, will be received here until 10:00 a.m., July 15th, 1909, and then opened, for the construction and delivery of Six Steam Launches. Blank forms, plans and specifications furnished upon application to this office and to the representative of the Consular Service of the United States at Hongkong, Shanghai and Singapore. Envelopes containing proposals should be endorsed "Proposals for construction of six Steam Launches, to be opened at 10:00 a.m., July 15th, 1909" and addressed to the Chief Quartermaster, Philippines Division, Manila, P. I.

PROPOSALS FOR REPAIRING THE U. S. A. T. "WARREN."—Headquarters Philippines Division, Office of Chief Quartermaster, Manila, P. I., May 15th, 1909. Sealed Proposals, in triplicate, subject to the usual conditions, for repairing the U. S. A. T. "WARREN," will be received here until 10:00 a.m., July 10, 1909, and then opened. Information and blank forms furnished upon application to the Representative of the Consular Service of the United States at Hongkong, Shanghai, Singapore and Chief Quartermaster, Philippines Division, Manila, P. I. Envelopes containing proposals should be endorsed "Proposals for repairing the U. S. A. T. 'WARREN,' to be opened at 10:00 a.m., July 10, 1909," and addressed to the Chief Quartermaster, Philippines Division, Manila, P. I.

PROPOSAL FOR ROPE.—Headquarters Philippines Division, Office of Chief Quartermaster, Manila, P. I., June 12th, 1909. Sealed proposals, in triplicate, subject to the usual conditions, for furnishing and delivering approximately 300,000 lbs. (30% more or less) of rope including all standard sizes from six thread heaving lines to eight inch towing lines, will be received here until 10:00 a.m., July 12th, 1909, and then opened in the presence of attending bidders. Certified check or guaranty in 10% of the amount of the bid must accompany each proposal. Blank forms and information furnished upon application. Envelopes containing proposals should be endorsed "Proposals for Rope, to be opened at 10:00 a.m., July 12th, 1909," and addressed to the Chief Quartermaster, Philippines Division, Manila, P. I.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, LIGHT, POWER, TELEGRAPHS, TELEPHONES, AIRSHIPS, ETC.

DAIREN ELECTRIC RAILWAY.—The work on this system is progressing rapidly and traffic will begin on a number of streets in July.

TO MANUFACTURE TELEGRAPH SUPPLIES.—Peking is contemplating establishing a plant to manufacture equipment for the Chinese telegraph system.

LONG DISTANCE TELEPHONES IN KWANGTUNG.—It is proposed to connect all the towns in the peninsula with a view to utilizing the service for police purposes.

WIRELESS IN BURMA.—A wireless service has been inaugurated connecting Mergui, Victoria Point, Rangoon and Calcutta. This service was inaugurated in February.

TOKYO-NARITA RAILWAY.—A scheme is being floated to connect these two points with an electric road and an effort is being made to raise the necessary funds in London.

CANTON ELECTRIC COMPANY.—The Viceroy of Kwangtung has been negotiating, through the firm of Messrs. Shewan Tomes & Co., for the redemption of this company. The price will be in the neighborhood of $1,500,000.

WUHU ELECTRIC LIGHT COMPANY.—This company is equipped to provide 6,000 lights of 16 candle power each and there is every indication from the orders filed for service that the present capacity will soon have to be increased.

HONGKONG TELEPHONES.—The announcement was made at the meeting of the Oriental Telephone Company that the China and Japan Telephone Company intended connecting Kowloon and Canton as soon as the railroad between these two points was completed.

JAPANESE ELECTRIC RAILWAYS.—At the end of February the Railway Board announced that there were 61 chartered roads in Japan which included a chartered mileage on the roads wholly or partly in operation of 342 miles and an inaugurated mileage of 197 miles.

GERMAN COLONIAL WIRELESS.—The German Government is interested in a plan to connect the South Sea Islands by wireless and also to put them in direct communication with the outside world. This system will include all the German colonies in the Pacific and later include the other islands.

F. M. S. TELEGRAPH LINE.—The land line between Kuala Lumpur and Singapore was open for business May 17. This means a reduction on messages from 25 cents a word by way of Penang and 13 cents a word by way of Malacca, to three cents a word only. This line is under the control of the Bureau of Posts and Telegraphs.

CHINESE RAILWAY TELEGRAPH LINES.—It is proposed to have the telegraph lines along the railways in China included in the Imperial system and the management of the Peking-Hankow, Peking-Mukden-Chenting-Taiyuen, Pienchow-Lohyang and Taokow-Tsinghwa companies have been directed to connect their railways under the direction of the telegraph company.

PHILIPPINE WIRELESS.—The Philippine Government has provided for the establishment of eight wireless stations as follows:

"Maasin, Leyte, Surigao, and Mambayao in Misamis; Cuyo, Culion, and Puerto Princesa in the province of Palawan; Bojeador, Ilocos Norte; and Basco, Batanes Islands. The amount appropriated for this purpose is ₱170,000."

JAPAN'S LIGHT AND POWER PLANTS.—Consul General Babbitt in his report from Yokohama says that the generating industry in Japan at the end of 1908 developed:

"Steam, 54,550 kilowatts; water, 31,951 kilowatts; gas, 105 kilowatts; total, 86,606 kilowatts, an increase of 12,090 as compared with 1907. It was worthy of special notice that the Tokyo Electric Light Company succeeded in the high transmission of 55,000 volts over a distance of 47 miles, from Katsura to Tokyo."

RAILWAYS AND RAILWAY SUPPLIES

SOUTH MANCHURIA RAILWAY SCHOOL.—There were 644 pupils enrolled in this school March 31st.

CANTON-KOWLOON RAILWAY.—The Governor of Hongkong places the excess of cost of this line at $1,000,000 over the estimates.

KIRIN-CHANGCHUN RAILWAY.—The sites for the depot and the other buildings for the proposed railway have been selected. This is the first indication of activity.

KIANGSU RAILWAY.—The opening of the section of the railway to Fengching took place on May 30th. It is expected that this line will be completed about 1911.

SOUTH MANCHURIA RAILWAY.—The gross earnings for the six months ended March 31st amounted to Yen 10,109,000 an increase of yen 2,568,400 over the corresponding term 1908

PEKING-KALGAN RAILWAY.—It was expected that the entire line to Kalgan would be opened at the end of June. The line to Huayen was in operation, a distance of 30 li from Kalgan last month.

WANT SWING RAILWAY BRIDGES.—The Chinese Chamber of Commerce at Tientsin has filed a petition with the Tientsin-Pukow Railway authorities asking that the rivers be spanned by swing bridges.

NEW HONAN RAILWAY.—The correspondent of the *Peking and Tientsin Times* at Changte writes that Chinese surveyors have completed the survey of a line connecting Changte with the coal regions about 80 li westward.

THE ANHWEI RAILWAYS.—It has been announced that Messrs. Pauling will finance this system. The loan will be for Tls. 16,000,000 and represents the estimated cost of construction and equipment of 800 li or 266 miles of lines.

CANTON-MACAO RAILWAY.—The syndicate organized to construct this line will probably be granted its franchise next month. It is understood that the line in Chinese territory will be built by Chinese and the Portuguese section financed by the Banco Nacional Ultramarino.

HONGKONG PEAK RAILWAY.—The consideration of four alternate routes for this line is being considered as follows:

"(1) a tunnel under the Gardens, (2) a line on the surface of Glenealy Ravine, (3) a line on high trestles in the Ravine, (4) a wide cutting through the Public Gardens. There is much opposition to the line cutting through the public gardens.

CAPITAL INVESTED IN JAPAN'S RAILWAYS.—Following is the summary of the capital represented:

	Yen.
Price paid by Government for the 17 Nationalized Railways	481,981,471
Private Lines	148,493,290
New Constructions in 1908	30,000,000
Total	660,474,761
Special Capital	96,991,239
Grand Total	757,466,000

SOUTH MANCHURIA RAILWAY CONSTRUCTION.—The following is the program announced for the year:

"New Workshops at Shanokou, near Dairen; preliminary work for Yamato Hotel, Dairen; completion of Yamato Hotel, Changchun; completion of Mukden Station; Church, Theatre, Colliery Club and Chief Engineer's Mansion for Fushun; Market-Places for Wafangtien and Tashihchiao; elementary schools for Liaoyang and Changchun; slaughter houses for Liaoyang and Kunchuling; roads for Liaoyang, Mukden, Tiehling, Kungchuling and Changchun; waterworks for Liaoyang, Mukden, Tiehling and Changchun.

PUBLIC WORKS, DOCKS, WHARVES, ETC.

ANOTHER PROPOSED NEW PORT.—There is some talk among the Cantonese to develop a port at Nanshui, near Canton.

WHANGPOO CONSERVANCY TEST.—The passage of H.B.M.S. Astraea through the new junk channel was made successfully and at no point was there found less than 28 feet of water while a depth of 34 feet and upwards was recorded at different points.

STRENGTHENING YANGKINGPANG BRIDGES.—For the purpose of strengthening these bridges so that the two tramway companies of Shanghai may run a common service a conference between the Chief Engineer of the concession and the municipal engineer has been held.

HUNCHUN PORT IMPROVEMENTS.—This port situated about 60 miles from the mouth of the Tumen is to be developed by the Kirin provincial government with a view to open it up to steamer traffic. The sum of Tls. 600,000 has been recommended expended by the authorities.

TSURUGA HARBOR.—The sum of yen 800,000 will cover the cost of the work proposed to improve the harbor of this Japanese port which is to cover an area of 54 acres dredged to a depth of 24 feet at low tide. Breakwaters will be extended and warehouse built so as to bring it up to a modern standard of convenience to shipping.

BRITISH APPROPRIATIONS FOR FAR EASTERN CONSULAR BUILDINGS.—Under the heading of New Works, Alterations, Additions, and Purchases (including Furniture in connection therewith), are the following votes;—Changsha: Erection of new Consulate, £1,000; Mukden: Erection of new Consulate, including residences for Assistants, stables, etc., £7,000; Newchwang: Installation of electric light and bells, £160; Peitaiho: Erection of summer quarters for the Peking Legation, including furniture (revote £900), £3,000; Peking: Improving water supply to residences, £550; Peking: Erection of cowshed, £180; Peking: Erection of house for Chinese Secretary, £500; Peking: Extension of electric lighting, £500; Tientsin: Addition to offices, £100; Acquisition of new sites in China, Japan, and Korea, £1,000.

KUSHIRO HARBOR WORKS.—The following description is given of the first part of extensive improvements to the port by British Consular reports:

1. A breakwater will be constructed, with a total length of 4,150 ft., starting from the cliffs to the west of the Kushiro lighthouse, and enclosing a harbor with an area of over 446,000 tsubo (368 acres). A further prolongation of 1,500 ft. will give an area of over 612,000 tsubo (506 acres). 2. Diversion of the River Akan and construction of an embankment at the mouth of the river. Each bank of the new rivermouth is to be extended by an embankment 1,900 ft. long which is to be erected so as to prevent the mouth being silted up with sand during high seas. 3. A groin is to be constructed in a south-westerly direction from the right bank of the mouth of the Kushiro. This will have a length of 1,930 ft., and will enclose the harbor, thus preventing the sand from being carried into it. 4. The harbor will be divided into two sections. The first section will be dredged to a depth of 26 ft. at low water, and the second to a depth of 12 ft. The estimated cost will be 4,759,541 yen (about £486,000), spread over 12 years.

SHIPBUILDING, GENERAL MARINE AND FISHERIES

BLUE FUNNEL LINE ACTIVE.—The Blue Funnel line is building four new liners for the purpose of entering the trans-Pacific trade.

SHANGHAI-NINGPO STEAMSHIP COMPANY.—This company has purchased a steamer from the Peking Government for Tls. 300,000.

KWANGTUNG DEEP SEA FISHING.—The Marine Products Association will soon introduce the use of trawlers in the territorial waters of the leased territory.

NIPPON YUSEN KAISHA FLEET.—The fleet owned by this company comprises 80 steamers ranging from 700 to 8,500 tons aggregating about 300,000 tons.

DAIREN BRANCH OF THE KAWASAKI DOCKYARD.—The announcement is made that this branch is now equipped as thoroughly as the home establishment.

FORMOSA SHIPPING.—The total tonnage entering and clearing Formosan ports during the year 1908 was 462,670 tons, an increase over 374,890 for the previous year. This is largely due to the deepening of Keelung harbor.

NEW JAPANESE CRUISERS.—An order each has been placed with the Mitsu Bishi Dockyard, Nagasaki, and the Kawasaki Dockyard, Kobe, for the construction of a 5,000 ton cruiser of high speed which will be completed by 1912. They will be utilized for dispatch vessels in time of war.

OSAKA SHOSEN KAISHA'S NEW STEAMERS.—The Tacoma Maru, one of six new steamers for the run connecting with the Chicago, Milwaukee, and St. Paul Railway via Seattle, was recently launched from the Kawasaki Dockyards. Her dimensions are: Lengths pps. 410', Breadth md. 51'3", Depth md. 32' 6". Tonnage: Displacement—12,000 tons, Gross Reg.—6,178 tons, Net Reg.—3,833 tons. Class: Lloyd's 100 A-1. with twin Screws; Speed: 13½ knots per hour; Electric Lighted and Steam Heated.

MINES, MINERALS AND THE METAL TRADE

BATAN COAL COMPANY.—This company has been installing new machinery and its coal has proved very satisfactory.

RICH STRIKE AT THE RAUB.—A lode was struck in the Anderson shaft reported to be sixty inches wide and carrying gold to the amount of 20 dwt. to the ton.

NEW CHINESE IRON WORKS.—The Viceroy of Chili and the Governor of Shanghai have been instructed by Peking to establish a works plant in Shansi along similar lines to the Hanyang.

BURMA OIL WELLS.—The rich strata of oil recently struck by Jamal Brothers at the Yenangyaung oil fields has now been tapped by both the Burma Oil Company and the Rangoon Oil Company with greater flow than at first obtained. This oil was tapped at a depth of 1,350 feet, being the greatest depth yet reached in the Burma oil fields.

PHILIPPINE MINING ACTIVITY.—The Paracale placer fields continue in active development. Several new dredgers will soon be installed; a twenty stamp mill is being placed in the San Mauricio quartz property and a number of new companies are being organized. In Benguet several deals have been concluded, among them the sale of a one-tenth interest in the Headwaters Mining Company by Nels Peterson to Hongkong capitalists through Governor Whitmarsh for ₱40,000.

FINANCIAL AND MISCELLANEOUS

FORMOSAN RICE CROP.—The total area under rice during 1907 was 788,470 acres and the crop 44,760,800 bushels.

INDUSTRIAL BANK DEBENTURES.—This institution has issued its fourteenth debentures to the amount of yen 2,000,000 drawing 5.5%.

CHARTERED BANK AGENCY IN F. M. S.—It has been decided to establish its branch at Tongkah and the site for the building has been selected.

KYOTO MUNICIPAL LOAN.—The flotation of a yen 5,000,000 loan has been successful. It was taken up by the Mitsui and other Tokyo Banks.

KIRIN BRANCH OF GREAT CHINESE BANK.—The city of Changchung has been selected as the location for the Kirin branch and it is now open for business.

LARGE ORDER FOR MANILA CIGARS.—The United Cigar Stores of the United States have placed an order in Manila for 12,000,000 cigars to be shipped upon the passage of the Payne Bill.

BANK OF FORMOSA.—This institution proposes to establish branches at Canton and Bangkok in addition to its present connections and to increase its capital from five to ten million yen.

MANCHURIAN MEDICAL SOCIETY.—The recently organized society held a general meeting at Dairen last month and Major General Miura of the medical corps of the Japanese army was elected chairman.

HAINAN FINANCIAL AGENCY.—A Straits Chinese millionaire has started a bank on the island of Hainan for the purpose of financing enterprises formed for the purpose of developing the mining resources.

ROPE MANUFACTURING COMBINE.—The Tsukishima, the Tokyo and the Nippon rope manufacturing companies have amalgamated their interests and the combine is capitalized at one and one-half million yen.

KIRIN DEVELOPING CO.—A company is being promoted by Chinese capitalists from Hongkong with a capital of Tls. 30,000,000 for the purpose of developing the resources of Kirin province and especially the lumber and mining.

FORMOSAN TEA EXPORT.—For the year 1908 there were exported from Formosa 17,693,739 pounds of Oolong and 5,547,200 pounds of Powchong. The average price realised on Oolong was 14 cents and on Powchong 12 cents.

HARBIN BEET SUGAR REFINERY.—Chinese promoters with a capital of yen 500,000 have selected a site for a large beet sugar factory and have acquired a large tract of land for the purpose on lease. The first crop will be taken off next year.

BENT WOOD FURNITURE MANUFACTURE IN JAPAN.—A factory at Tokio is now in successful operation and it is expected that it will supply the demand presented heretofore by the importation of that class of article to the amount of $100,000.

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*LONDON, ENGLAND, METAL MARKET

May 1909.

COPPER	£	s.	d.		£	s.	d.
*Tough cake and Ingot	60	15	0	..	61	5	0
*Best Selected	61	0	0	..	61	10	0
*Electrolytic	61	0	0	..	61	10	0
*Sheets and sheathing	71	0	0	..	—		
*Flat bottoms	74	0	0	..	—		
STANDARD †Cash	57	11	3	..	57	13	9
STANDARD †Three Months	58	5	0	..	58	7	6
*Copper tubes, seamless per lb.	0	0	9½	..	—		
*Lake	61	10	0	..	62	0	0

* Less 3⅓ per cent. † Net.

ALLOYS.

	£	s.	d.		
BRASS: Wire	0	0	6½	..	—
,, Tubes (solid drawn)	0	0	7¾	..	—
,, Sheets	0	0	6¾	..	—

TIN.

	£	s.	d.		£	s.	d.
English ingots, f. o. b.	130	10	0	..	131	10	0
,, bars	131	10	0	..	132	10	0
,, refined	132	10	0	..	133	10	0
Straits... Cash	131	0	0	..	131	5	0
Straits... Three months	132	0	0	..	132	5	0
Australian spot	131	0	0	..	131	10	0
Banka (in Holland) Cash	134	12	6	..	—		
Banka (in Holland) Three months	135	1	3	..	—		

LEAD.

	£	s.	d.		£	s.	d.
Spanish or soft foreign	13	5	0	..	13	7	6
English pig, common	13	7	6	..	13	12	6
,, L. B.	14	0	0	..	—		
,, sheet and bar lead	14	10	0	..	—		
,, pipe	15	0	0	..	—		
,, red	16	5	0	..	—		
,, white	18	0	0	..	—		
,, patent shot	16	10	0	..	—		

SPELTER.

	£	s.	d.		£	s.	d.
Silesian ordinary brands	21	12	6	..	21	15	0
,, special brands	22	2	6	..	22	7	0
English Swansea	22	0	0	..	22	10	0
Sheet zinc	24	15	0	..	—		

ANTIMONY.

	£	s.	d.		£	s.	d.
Antimony	30	0	0	..	32	0	0
,, Crude	13	10	0	..	14	10	0
,, Ore (basis 50%)	7	10	0	..	8	10	6

QUICKSILVER.

	£	s.	d.		
Flasks, 75 lbs. warrants	8	7	6	..	—

MANGANESE.

Ore, c.i.f., U. K. ports.	Per unit.				Per unit.*
1st quality, 50 per cent. and upwards	0	0	9	..	—
2nd quality, 47 per cent. to 50 per cent	0	0	8	..	—
3rd quality, 40 per cent. to 47 per cent	0	0	7	..	—

* Unit corresponds to 1 per cent.

ALUMINIUM.	Per ton.
98-99 per cent	£60 to £65

NICKEL.	Per ton.				Per ton.		
98-99 per cent. guaranteed	170	0	0	..	175	0	0

PLATINUM.

Per oz. Troy, 100s.; nominal and subject to negotiation.

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*Mining Journal.

CURRENT NEW YORK WHOLESALE PRICES OF METALS, MINERALS, CHEMICALS, ETC.

Selected from the Engineering and Mining Journal

	U. S. Currency.
ABRASIVES.—	
Bort, good drill quality ... carat ... $	85.00
Carborundum, grains ... lb ...	.10-.17
Corundum ... " ...	.07-.10
Emery, grain ... " ...	.035-.045
Pumice Stone, American powdered ... 100 lbs ...	1.60-2.00
ACIDS.—	
Hydrochloric 20° ... lb ...	1.25-1.50
Nitric, 38° ... " ...	4.25-4.625
Sulphuric, 66° bulk ... ton ...	18 00
ALUMINUM, Sulphate Com'l ... lb ...	1.10-1 75
ANTIMONY, needle ... " ...	.05-.06
ARSENIC, white ... " ...	.05-.055
red ... " ...	.07½-.70
ASPHALTUM.—	
Trinidad ... ton ...	2 00-30.04
California ... " ...	21.00-27.00
BLEACHING POWDER, 35% ... 100 lbs ...	1 25-1.00
BLUE VITRIOL ... lb ...	5.00
BONE ASH ... " ...	.02¾-.04
BORAX ... " ...	.04½-.05½
*CAPS detonating ... M ...	-7.50
CEMENT.—	
Portland, American ... 500 lbs. bbl ...	1.55-1 60
Foreign ... " " " ...	2.25-2.90
Rosendale ... 300 " " ...	.85
*Green Island ... 375 " " ...	2.75
*Alsen ...	3.00
CLAY, CHINA.—	
American common ... lg. ton ...	8 50-9.00
Foreign ... " ...	10.00-17.50
***COALS.—**	
Batan, at Mines ... ton ...	3 00
Australian ... " ...	5 50
COPPER ... lb ...	.13-.14
*DYNAMITE 40% ... " ...	.20
FELDSPAR ground best ... sh. ton ...	10 50-15.00
FIRE BRICK, American ... M ...	30.00-40 00
Imported ... " ...	30.00-45.00
FIRE CLAY, St. Louis Mill ... ton ...	2.50
FUSE—Blasting ... 1,000 ft ...	7 50
GRAPHITE—Ceylon, lump ... lb ...	.04-.10
Large lump ... lb ...	.07-.10
GYPSUM—Fertilizer ... sh ton ...	7.00
Powdered ... sh. ton ...	12.00-20.00
LEAD ... lb ...	-.04
MAGNESITE-Greece, crude, 95% .lg. ton.	8.00-10 00
Bricks, domes ... per M ...	160-200
MANGANESE, Ore, 80-85% ... sh. ton ...	20.00-50.00
MERCURY, export flask ... 75 lbs ...	36.00-39.00
PAINTS AND COLORS.—	
Litharge American P'w'd ... lb ...	.06½-.06¾
Ochre, Am. Com ... sh. ton ...	8.50-9.00
Paris green, pure, bulk ... lb ...	.26
Turpentine, spirits, bbl ... gal ...	.44½-.4
White lead, Am. dry ... lb ...	.05¾-.0
Am. in oil ... " ...	.06½-.06
Zinc, white, Am. extra dry ... " ...	.05¾-.05
PHOSPHATES, Acid ... per unit ...	.65-.7
Florida hard rock ... lg. ton ...	10.25-10 5
Land pebble 68% ... " ...	5.25-5.5
POTASSIUM Cyanide (98-99%) ... lb ...	.18-.19
PLATINUM ... oz ...	28.00
PLATINUM, Scrap ... oz ...	17.00
SPELTER ... lb ...	.045-.046
NICKEL ... Small lots ... lb ...	.50-.60
*POWDER, black blasting A ... lb ...	.15
*Judson ... " ...	.14½
Pyrite, Domestic Non-arsenical, Lump ... unit ...	.11-.11½
Imported non-arsenical lump ... " ...	.12½-.13
Imported, arsenical " ... " ...	.12-.12½
SALTPETER crude ... 100 lbs ...	4.50-5.00
SILICA, Lump quartz ... lg. ton ...	5 00-6.00
Ground quartz, ordinary " ...	13 00-15.00
Glass sand, ordinary ... " ...	2.7
SILVER ... oz ...	.55½-.55
SODIUM cyanide (100% KCN) ... lb ...	.1
*STEEL, octagon drill ... lb ...	.
SULPHUR, Louisiana prime ... lg. ton ...	22.
Roll ... 100 lbs ...	1.85-2.
Flowers sublimed ... " ...	2.20-2.
TALC—Domestic ... sh. ton ...	15.00-25.
Italian, best ... " ...	35.00-40.
TIN ... lb ...	.9½
ZINC, Sheet ... 100 lb ...	7.
Dust ... lb ...	.05¾-.06

*Manila quotation.

HEMP STATISTICS, 31st MAY, 1909.

(Courtesy of C. S. NICHOLSON, *Secretary, Manila Chamber of Commerce.)*

EXPORT OF HEMP, MAY, 1909.

Date		Vessel	London	L'pool	Atlantic U.S.	Pacific East & California	Continent.	Australia	Other Pts.	Total Bales
1909			87,877	46,119	150,751	25,119	24,130	4,938	13,094	352,028
May	1	Zafiro	2,000						100	2,100
"	4	Cranley	1,250							1,250
"	6	Aldenham							455	455
"	7	Rubi							500	500
"	"	Nikko Maru							131	131
"	"	Tydeus	8,010	8,225			2,800			19,035
"	4	Sungkiang...Cebu		350						350
"	"	Taming							150	150
"	11	Tean		750					69	819
"	14	Zafiro		500			1,050			1,550
"	"	Falls of Nith..Cebu	3,514				350			3,864
"	"	Suveric			4	8,290				8,294
"	"	Yuensang							200	200
"	"	Antilochus				2,573				2,573
"	18	Isla de Panay		1,750			121			1,871
"	"	Taming		600						600
"	"	Kaifong ......Cebu		1,185						1,185
"	17	Taiyuan						215		215
"	"	Yawata Maru						1,350		1,350
"	"	Croydon							75	75
"	21	Rubi							400	400
"	23	Manila						700		700
"	25	Falls of Nith	7,972	750			1,125			9,847
"	"	Tean		570						570
"	"	Zafiro	5,200						250	5,450
"	"	Sungkiang...Cebu		2,500						2,500
"	28	Yuensang	200				4			204
"	25	Kennebec			8,970					8,970
"	26	Prinz Waldemar							60	60
			116,023	63,299	159,725	35,982	29,580	7,203	15,484	427,256

FAR EASTERN STOCKS AND QUOTATIONS

Courtesy of Messrs. Kadoorie & Co., Hongkong, May, 1909.

STOCK.	When Established	CAPITAL	No. of Shares	Value	Paid Up	RESERVE	AT WORKING ACCOUNT	Date	LAST DIVIDEND.	Approximate Yield per cent. per annum at Present Quotation	CLOSING QUOTATIONS.
BANKS.											
Hongkong & Shanghai Banking Corporation	1865	$15,000,000	120,000	$125	$125	e £1,500,000 g $14,500,000 i $250,000	$2,006,234	31-12-08	Final of £2-and bonus of 5/- @ ex 1/8 ¾ = $26.024, making in all $47.966 for 1908	5¼	$980 buyers £90
National Bank of China, Ld.	1891	£699,475	10) 99,925	£7	£6	c £4,099 $150,000	$10,223	31-12-07	$2 (London 3/6) for 1903	....	$51
MARINE INSURANCES.											
Canton Insurance Office, Ld.	1881	$2,500,000	10,000	$250	$50	$1,560,000 j $232,757 u $411,990	Nil.	31-12-07	$14 for 1907	7½	$197½ sales
North China Insurance Co., Ld.	1863	£150,000	10,000	£15	£5	g £125,000 e Tls. 150,000 u Tls. 303,747 f Tls. 118,277	Tls. 160,512	30-6-08	Interim of 7/6 for % 1907	5½	Tls. 104 buyers
Union Ins. Society of Canton, Ld.	1867	$3,100,000	12,400	$250	$100	e $3,000,000 g £90,000 f $192,248 j £105,249 u $682,609	$2,464,901	31-12-08	Final of $17 making $47 for 1907, and interim of $30 for account 1908	5¾	$845 sales
Yangtsze Ins. Association, Ld.	1862	$1,200,000	12,000	$100	$60	$1,000,000 j $294,405 f $199,234	$707,637	31-12-08	$12 and bonus $3 for 1907	7½	$225 buyers
FIRE INSURANCES.											
China Fire Ins. Co., Ld.	1870	$2,000,000	20,000	$100	$20	$1,000,000 z $438,668 f $13,802	$375,314	31-12-08	$6 and bonus $2 for 1907	7	$110 buyers
Hongkong Fire Ins. Co., Ld.	1868	$2,000,000	8,000	$250	$50	$1,438,173	$368,711	31-12-08	$27 for 1907	8	$345 sales
SHIPPING.											
China & Manila Steamship Co., Ld.	1882	$750,000	1) 30,000	$25	$25		*Dr.* $21,538	31-12-08	$1 for 1906	....	$11 sellers
Douglas Steamship Co., Ld.	1883	$1,000,000	20,000	$50	$50	$264,638 i $99,067	Nil.	30-6-08	$2½ for year ending 30-6-08	....	$36
Hongkong, Canton & Macao Steamboat Co., Ld.	1865	$1,200,000	80,000	$15	$15	e $250,000 d. i. $607,500 f $ 79,428 $ 25,344	$20,279	30-12-08	Final of $1½ making in all $2½ for 1908	7¾	$32 buyers
Indo-China Steam Navigation Co., Ld. (Preferred) Do. Do. (Deferred)	1882	m £600,000	2) 60,000 2) 60,000	£5	£5	£10,000 i £240,000	£13,700	31-12-07	6/- for 1907 on pref. shares only at ex. 1/9 11/16, $3.154	4	$73 buyers
Shanghai Tug & Lighter Co., Ld. Do. Preference	1903	Tls. 1,500,000	20,000 10,000	Tls. 50	Tls. 50	Tls. 75,000	Tls. 14,510	31-12-08	Final of Tls. 1¾ making Tls. 3½ for 1908	7½ 7	Tls. 52½ buyers Tls. 53 sales
"Shell" Transport & Trading Co., Ld.	1898	£ 2,000,000	2,000,000	£1	£1	£720,000 i £100,000	£63,817	31-12-07	Second Interim of 1/- for a/c 1908	....	60/9- buyers
"Star" Ferry Co., Ld.	1898 1900	$200,000	10,000 10,000	$10 $10	$10 $5	$65,000 i $47,221	$98	30-4-08	$1.00 50 cts. for year ended 30-4-08	4 3½	$27 buyers $16 buyers
Taku Tug & Lighter Co., Ld.	....	Tls. 1,500,000	12) 30,000	Tls. 50	Tls. 50	Tls. 98,000 d Tls. 481,479 e Tls. 44,100 i Tls. 81,200 q Tls. 7,000	Tls. 2,215	31-12-08	Final of Tls. 1½ making Tls. 2½ for 1908	11	Tls. 45 sales
REFINERIES.											
China Sugar Refining Co., Ld.	1878	$2,000,000	20,000	$100	$100	e $350,000 r $56,848	*Dr.* $5858	31-12-08	$5 for year ending 31-12-08	3½	$145 sales
Luzon Sugar Refining Co., Ld.	1882	$700,000	7,000	$100	$100	none	*Dr.* $135,893	31-12-08	$3 for 1897	....	$15 sellers
Perak Sugar Cultivation Co., Ld.	—	Tls. 350,000	7,000	Tls. 50	Tls. 50	Tls. 100,000	Tls. 9,173	31-8-07	Tls. 3½ for year ending 31-8-08	....	Tls. 260 sales
MINING.											
Chinese Engineering & Mining Co., Ld.	1901	£1,000,000	1,000,000	£1	£1	d £175,000 h £12,289	£11,556	28-2-07	Int. of 1/6 for year ending 29-2-09 (Coupon No. 12)	7	Tls. 17.20 buyers
Raub Australian Gold Mining Co., Ld	1892	£200,000	150,000 50,000	£1 £1	18-10 £1	£4,873	*Dr.* £2,191	31-3-08	No. 12 of 1/- = 48 cents	....	$9½ buyers
DOCKS, WHARVES AND GODOWNS.											
Fenwick (Geo.), & Co., Ld.	1889	$450,000	s 18,000	$25	$25	$42,986	*Dr* $7,421	31-12-08	$1¾ for year ending 31-12-06	....	$12
Hongkong & Kowloon Wharf & Godown Co., Ld.	1886	$3,000,000	60,000	$50	$50	$550,000 t $26,806 i $40,000	$30,102	31-12-08	Final of $1½ making $3½ for 1907	....	$59 buyers
Hongkong & Whampoa Dock Co., Ld.	1866	$2,500,000	50,000	$50	$50	i $97,199 v $200,000	$387,078	31-12-08	Final of $4 making $8 for 1908	11¾	$68 buyers
Shanghai Dock & Engin'g Co., Ld.	1906	Tls. 5,570,000	13) 55,700	Tls. 100	Tls. 100	Tls. 1,000,000	Tls. 33,742	30-4-08	Interim of Tls. 2½ for month ending 31-10-1908	6	Tls. 85 buyers
Shanghai & Hongkew Wharf Co., Ld.	1902	Tls. 3,600,000	36,000	Tls. 100	Tls. 100	b Tls. 697,257 r Tls. 50,000 e Tls. 125,000	Tls. 22,818	31-12-08	Final of Tls. 6 making Tls. 10 for 1908	6	Tls. 164 sales
LANDS, HOTELS AND BUILDINGS.											
Anglo-French Land Investment Co., Ld.	1906	Tls. 2,500,000	3) 25,000	Tls. 100	Tls. 100	Tls. 35,000	Tls. 4,314	29-2-09	Tls. 6 for year ending 29-2-09	5¾	Tls. 104 buyers
Astor House Hotel Co., Ld.	1901	$750,000	4) 30,000	$25	$25	$30,000	*Dr.* $4,200	30-6-08	$2½ for year ending 30-6-07	....	$20 sales
Astor House Hotel, Ld. (Tientsin)	....	Tls. 200,000	4,000	Tls. 50	Tls. 50	Tls. 35,000 e Tls. 10,000	Tls. 1,013	28-2-0	20 per cent. for 1906	....	Tls. 60
Central Stores, Ld.	....	$751,845	16) 50,123	$15	$15	n. $1,000	$24,641	31-12-08	$1.20 on old & 60 cts. on first new issue	....	$19 buyers
Hongkong Hotel Co., Ld.	1866	$600,000 $400,000	12,000 8,000	$50 $50	$50 $25	$648,975 r $13,912	$295	31-12-08	Final of $3 making $6 1908	....	$71 ex ni. $42 new issue
Hongkong Land Investment & Agency Co., Ld.	1889	$5,000,000	50,000	$100	$100	e $250,000	$26,475	31-12-08	Final of $3½ making $7 for 1908	7	$108 sales
Humphreys' Estate & Finance Co., Ld.	1887	$1,500,000	150,000	$10	$10	i $222,172 20) $43,261	$5,486	31-12-08	60 cents for 1908	6¾	$9½ sa. & buyers
Kowloon Land & Bldg. Co., Ld.	1889	$300,000	6,000	$50	$30	none	$278	31-12-08	$1½ for 1908	5	$30
Shanghai Land Investment Co., Ld.	1888	Tls. 3,900,000	78,000	Tls. 50	Tls. 50	Tls. 1,523,045 e Tls. 300,000	Tls. 142,404	31-12-08	Final of Tls. 3 & bonus of Tls. 2 making Tls. 8 for 1908	6¾	Tls. 120
Tientsin Land Investment Co., Ld.	1902	Tls. 772,600	7,726	Tls. 100	Tls. 100	i Tls. 75,308	Tls. 129	31-12-08	Final of Tls. 2 making Tls. 5 for 1908	....	Tls. 85 buyers
West Point Bldg. Co., Ld.	1889	$625,000	12,500	$50	$50	none	$1,968	31-12-08	Final of $2 making $4 for 1908	9	$44½ buyers
COTTON MILLS.											
Ewo Cotton Spinning & Weaving Co., Ld.	1895	Tls. 1,000,000	5) 20,000	Tls. 50	Tls. 50	Tls. 150,000 Tls. 45,939	Tls. 8,820	31-10-08	Tls. 5 for year ended 31-10-08	4½	Tls. 122 sellers
Hongkong Cotton Spinning, Weaving & Dyeing Co., Ld.	1901	$1,250,000	125,000	$10	$10	e $20,000	$9,553	31-7-08	50 cents for year ending 31-7-08	6	$8½

FAR EASTERN STOCKS AND QUOTATIONS—(CONTINUED.)

STOCK.	WHEN ESTABLISHED	CAPITAL.	NO. OF SHARES.	VALUE.	PAID UP.	RESERVE	AT WORKING ACCOUNT.	DATE.	LAST DIVIDEND.	Approximate Yield per cent. per annum at Present Quotation.	CLOSING QUOTATIONS
International Cotton Manufacturing Co., Ld.	1895	Tls. 750,000	6) 10,000	Tls. 75	Tls. 75	Tls. 175,000	Tls. 8,372	30-9-08	Tls. 6 for year end. 30-9-06 (8%).	....	Tls. 89 sellers
Laou-kung-mow Cotton Spinning & Weaving Co., Ld.	1895	Tls. 800,000	8,000	Tls. 100	Tls. 100	none	Tls. 4,829	31-12-08	Tls. 4 for 1908	....	Tls. 110 sellers
Soy Chee Cotton Spinning Co., Ld	1895	Tls. 1,000,000	2,000	Tls. 500	Tls. 500	*l* Tls. 31,172	Tls. 15,911	31-12-08	Tls. 50 for 1906	....	Tls. 400 sellers
MISCELLANEOUS.											
Bell's Asbestos Eastern Agency, Ld.	1895	£5,377.10s	11) 8,604	12/6	12/6	*e* £1,500	£648	31-12-08	1s. 10½d. for 1907=$1.037	10	$10¼
China-Borneo Co., Ld.	1903	$720,000	8) 60,000	$12	$12	$40,000	Nil.	31-12-08	$1.20 for 1908	9½	$13 sales
China Light & Power Co., Ld. Do. do. Special Shares	1901 1907	$550,000	50,000 17)50,000	$10 $1	$10 $1	none	$61,138	28-2-07	60 cents for year ending 28-2-06	....	$7½ sales
China Provident Loan & Mortgage Co., Ld.	1898	*a* $1,250,000	7) 125,000	$10	$10	$100,000	$3,407	31-12-08	80 cents for 1908	8½	$9½ buyers
Dairy Farm Co., Ld.	1896	$300,000	40,000	$7½	$6	10,000 $8,000	$48	31-7-08	$1.30 for year ending 31-7-08	7¾	$16½
Green Island Cement Co., Ld.	1889	$4,000,000	400,000	$10	$10	$13,000	$3,756	31-12-08	Final of 50 cts. making 90 cts. for 1908	10¼	$8.80 sales
H. Price & Co., Ld.	1907	$120,000	19) 15,000	$10	$10	$5,000	$251	31-12-07	75 cts. for 9 months endg. 31-12-07	8	$12
Hall & Holtz, Ld.	....	$420,000	14) 21,000	$20	$20	$186,000	$8,957	28-2-09	$2 for year ending 28-2-09	9½	$21 buyers
Hongkong Electric Co., Ld.	1889	$600,000	60,000	$10	$10	none	$5,195	29-2-09	$1.00 and bonus 20 cents for year ending 29-2-09	6½	$18¾ buyers
Hongkong Ice Co., Ld.	1881	$125,000	5,000	$25	$25	*k* $150,000	$7,616	31-12-08	Final of $15 per share making in all $19 for 1908	12½	$155 sellers
Hongkong Rope Manufacturing Co., Ld.	1883	$600,000	$60,000	$10	$10	$20.000	$8,790	31-12-08	Final of $1 per share making $2 for 1908	8½	$24 sellers
Maatschappij tot Mijn-, Bosch- en Landbouwexploitatie in Langkat	1902	Gs. 2,500,000	25,000	Glds. 100	Glds. 100	Tls. 547,500 *i* Tls. 63,914 21 Tls. 547,500	Tls. 316,682	31-10-08	First quarterly dividend of Tls. 12½ for % 1909	4	Tls. 1130 buyers
Peak Tramways Co., Ld. Do. (New)	1907	$750,000	25,000 50,000	$10 $10	$10 $1	$5,000	$ 7,471	30-4-08	80 cents on fully paid shares & 6 cents on $1 paid shares for year ending 30-4-08	6 3	$14 buyers $2
Philippine Co., Ld.	1904	$750,000	75,000	$10	$10	none	Ps. 18.640	31-12-08	None	---	$8
Shanghai Gas Co., Ld.	1903	Tls. 800,000	24,000	Tls. 50	Tls. 50	*d* Tls. 100,000	Tls. 6,603	31-12 07	Interim of 7% Tls. 3½ for % 1908	6¾	Tls. 112½ buyers
Shanghai-Sumatra Tobacco Co., Ld.	1902	Tls. 600,000	9) 30,000	Tls. 20	Tls. 20	Tls. 24,820 *w* Tls. 75,000	Tls. 5,250	31-10-08	Final of Tls. 5 making Tls. 8 for 1908	4¾	Tls. 166 buyers
Shanghai Waterworks Co., Ld.	1881	£327,000	16,350	£20	£20	Tls. 220,000	Tls. 23,038	31-12-08	Final of 30/- making 45/- for 1908	---	Tls. 415 buyers
South China Morning Post, Ld.	1903	$150,000	6,000	$25	$25	none	*Dr.* $56,602	31-8-08	None	....	$24
Steam Laundry Co., Ld.	1902	$100,000	20,000	$5	$5	none	$236	31-5-08	40 cents for year ending 30-5-08	8	$5
Tientsin Waterworks Co., Ld.	1901	Tls. 200,000	2,000	Tls. 100	Tls. 100	Tls. 15,259 *e* Tls. 4,000	Tls. 201	30-4-07	Tls. 6½ for year ending 30-4-07	....	Tls. 94 buyers
Union Waterboat Co., Ltd.	1905	$500,000	15) 50,000	$10	$10	none	$172	31-12-08	60 cents for year-end, 31-12-1908.	5	$10½ buyers
United Asbestos Oriental Agency, Ld.	1896	$100,000	10,000	$10	$4	$35,000	$1,360	31-5-07	80 cts. on 9,900 ord shares & $19.80 on 100 founders shares for year ending 31-5-07	6¼	$13 buyers
Watson (A. S.) & Co., Ld.	1886	$900,000	90,000	$10	$10	$300,000 *e* $25,000	$6,438	31-12-07	Interim of 30 cents % 1908	6¾	$9
Weismann Limited	1904	$17,500	175	$100	$100	$6,700	$13	31-7-07	10 per cent for year endg. 31.7.07.	....	$150
William Powell, Ld.	1901	$105,000	15,000	$7	$7	none	$3.95	30-6-08	Final of 30 cents making 80 cents for year ending June 30th 1906	....	$4 sales

LOANS AND DEBENTURES.	AGENTS' FOR THE LOAN.	AMOUNT OF LOAN.	PAR VALUE.	OUTSTANDING BONDS.	WHEN PAYABLE.	CLOSING QUOTATIONS.
China Government, 7 per cent. Silver Loan 1886 E.	Hongkong & Shanghai Banking Corporation.	Tls. 767,200	Tls. 250	1914	Mar. 31st and Sept. 30th each year until Mar. 31st, 1917	par.
Hongkong Hotel Company, Ltd., 6 per cent. Mortgage Debentures of 1899 ‡		$500,000	$500	§ all	Half yearly, June 30th and December 31st	par
Shanghai & Hongkew Wharf Company, Ltd., 6 per cent. Debentures of 1902		Tls. 543,900	Tls. 100	....	Half yearly, June 30th and December 31st	Tls. 103½
Astor House Hotel Company, Ltd., 8 per cent. Debentures of 1903		Tls. 500,000	Tls. 100	....	Half yearly, January 1st and July 1st	102½
Chinese Engineering & Mining Co., Ltd., 6 per cent. Debentures of 1903 †	....	£500,000	¶	£431,960	Half yearly, June 30th and December 31st	par.
International Cotton Manufacturing Co., Ltd. 7% Debentures of 1901	Russo Chinese Bank	Tls. 500,000	Tls. 100	‖	Half yearly, March 31st and Sept. 30th	Tls. 97½.
China Light and Power Co., Ltd. 6% Debentures of 1907 ***	....	$500,000	$100	....	Half yearly, June 30th and December 31st.	par.

(Closing quotations: Plus interest)

a Authorised capital $2,000,000.
b Building Reserve Account.
c Capital Reserve Fund.
d Depreciation Fund.
e Equalisation of Dividend Fund.
f Exchange and Investment Fluctuation Account.
g Gold Reserve Fund
h Exchange Reserve Account.
i Insurance Fund.
j Reinsurance Fund.
k Contingencies Account.
l Legal Reserve Fund.
m Authorized Capital
n Sinking Fund.
o Raw Sugar Reserve Account.
p Premium on New Issue.
q Boiler Repairs and Renewals Account
r Repairs and Renewals Account.
s Silver Reserve Fund.
t Depreciation and Repair Account
u Underwriting Suspense Account.
v Special account
w Special Works Fund.
x Extra Reserve Fund.
y 72,560 owned by the Company.
z 7,200 shares unissued.
1 4,000 shares unissued.
2 First issue of 60,000 of which 10,411 unallotted.
3 5,000 shares unissued.
4 4,480 shares unissued.
5 5,000 shares unallotted.
6 1,616 shares unallotted.
7 75,000 shares unissued.
8 14,000 shares unissued.
9 17,000 shares unissued.
10 40,453 shares actually issued.
11 7,688 shares actually issued.
12 4,200 shares unissued.
13 500 shares unissued.
14 399 shares unissued.
15 22,277 shares unissued.
16 10,000 shares unissued.
17 Special shares are entitled to half of the profits.
18 Capital contributed by Chinese Government Kuping Tls. 5,000,000.
19 12,000 issued only.
20 Typhoon and Floods Insurance Fund
21 Special Cash Reserve.
* Based on last year's dividend.
** Based on present dividend.
‖ Only Tls. 134,000 taken up.
§ 216 held by the Company.
¶ In certificates of £20 and £100.
‡ Redeemable in 10 years, or at option of Company, the Company giving 6 months notice.
† Redeemable at par at rate of £10,000 per annum from 31st December 1903 to 31st December 95.
*** Redeemable at par on 30th June, 1915.
Dr. Deficit.

ADDITIONAL SHANGHAI SHARE QUOTATIONS

STOCK	CLOSING QUOTATIONS	HIGHEST AND LOWEST PRICES DURING THE WEEK	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	LAST DIVIDEND	WHEN PAID
Oriental Consolidated Mining Co., Ltd.	27s. 6d.		G. $5,000,000	500,000	G. $10	G. $10	none	3rd Div. of Gold cents 50 making gold $1½ for year ended 30th June 1907.	Dec. 31, 1908
Kiang pei-ting Coal & Iron Mine Co., Ltd.	Tls. 50		Tls. 500,000	5,000	Tls. 100	Tls. 50	—	First year.	—
Vulcan Iron Works, Limited	Tls. 400		Tls. 500,000	1,000	Tls. 500	Tls. 500	—	Tls. 50 for year ended 31.8.06	Nov. 1, 1906
Yangtsze Wharf & Godown Co., Limited	Tls. 125 nominal		Tls. 250,000	2,500	Tls. 100	Tls. 100	Tls. 50,000	Tls. 15 for 1908	April 1, 1909
Wei-hai-wei Land & Building Co., Limited	Tls. 10 nominal		Tls. 91,850	3,674	Tls. 25	Tls. 25	—	—	—
Union Estate & Investment Co., Limited	Y. 105 sales		Y. 1,000,000	10,000	Y. 100	Y. 100	—	First year.	—
Grand Hotel, Limited	Y. 100 sellers		Y. 500,000	5,000	Y. 100	Y. 100	—	Interim Y. 5 for ½ year	Dec. 31, 1908
Hotel des Colonies Company, Limited	Tls. 9 sellers		Tls. 112,500	9,000	Tls. 12½	Tls. 12½	Tls. 29,783	6% for 1907	May 29, 1908
Kalee, Limited	$100 nominal		$400,000	4,000	$100	$100	—	$5 for 1907	May 22, 1908
Anglo-German Brewing Co., Limited	$85 buyers		$100,000	4,000	$100	$100	none	$7 for 1907	Mar. 12, 1908
Butler Tile Works, Limited	Tls. 50 nominal		Tls. 60,000	1,200	Tls. 50	Tls. 50	—	Tls. 3 for year ending 31.3.07	May 29, 1907
Major Bros., Limited	Tls. 40 sellers		Tls. 300,000	6,000	Tls. 50	Tls. 50	—	—	—
Oriental Ice Company, Limited	Tls. 50		Tls. 130,000	2,600	Tls. 50	Tls. 50	—	First year	—
Scharffs Oil and Bone Mills, Ltd.	Tls. 50		Tls. 200,000	4,000	Tls. 50	Tls. 50	—	First year	—
Shanghai Ice Company, Limited.	Tls. 13 sales		Tls. 200,000	8,000	Tls. 25		—	3% for 1907	Mar. 14, 1908
Shanghai Oil Co., Limited	Tls. 25		Tls. 175,000	7,000	Tls. 25	Tls. 25	—	First year	—
Campbell, Moore & Co., Limited.	$10 buyers		$12,000	1,200	$10	$10	$9,000	$3 for 1905	Apr. 2, 1906
Dunning & Company, Limited	$50 sellers		$100,000	2,000	$50	$50	—	$5 year ending 28.2.08	Apr. 15, 1908
J. Llewellyn & Co., Limited	$50 buyers		$72,000	1,200	$60	$60	—	7.20 for 1908	Apr. 1, 1909
Lane, Crawford & Company	$137½ sales	137½	$250,000	2,500	$100	$100	—	Final of 7% making 14% for 1907	May 25, 1908
Mondon (E. L.) Limited	Tls. 6 buyers		Tls. 225,000	9,000	Tls. 25	Tls. 25	none	—	—
S. Moutrie & Company, Limited.	$48 sellers		$250,000	5,000	$50	$50	—	$4 for year ended March 31, 1908	June 18, 1908
Weeks & Company, Limited	$22 buyers		$400,000	20,000	$20	$20	$25,000	Interim of 80 cents for 1908	Dec. 14, 1908
Dominion Rubber Co., Limited.	Tls. 4		Tls. 225,000	22,500	Tls. 10	Tls. 4	—	First year	—
Kalumpong Rubber Co., Ltd.	Tls. 42 sellers		Tls. 700,000	14,000	Tls. 50	Tls. 50	** Tls. 11,844.48	6% for 1907	Nov. 29, 1908
Senawang Rubber Estates Company, Limited	Tls. 100		Tls. 250,000	2,500	Tls. 100	Tls. 100	—	—	—
Senawang Rubber Estates Company, New	Tls. 75				Tel. 100	Tls. 75			
Tebong Rubber and Tapioca Estate, Limited	20s.		£76,000	76,000	£1	£1	—	—	—
Eastern Fibre Co., Limited	Tls. 10 nominal		Tls. 300,000	30,000	Tls. 10	Tls. 10	—	—	—
Shanghai Mercury, Limited	Tls. 50 buyers		Tls. 105,500	2,100	Tls. 50	Tls. 50	—	Final of 6% making 10% for year ended 30.4-08	June 29, 1908
Shanghai Mutual Telephone Co., Limited	Tls. 57 buyers	57½	Tls. 675,000	13,500	Tls. 50	Tls. 50	—	Tls. 3 for 1907	June 28, 1908
China Export Import & Lumber Company, Limited	Tls. 92½ nominal		Tls. 350,000	500	Tls. 100	Tls. 50	—	10 p. c. for year ending 29.2.08	May 1, 1908
China Printing Co., Limited	Tls. 50		Tls. 750,000	1,500	Tls. 50	Tls. 50	—	7% 1908	Apr. 18, 1909
Dallas Horse Repository Co., Ltd.	Tls. 25 nominal		Tls. 250,000	5,000	Tls. 50	Tls. 50	—	—	—
Hirano Mineral Water Co., Ltd.	Y. 15 sales		Y. 125,000	5,000	Y. 25	Y. 25	—	10%=yen 2½ for year ending 30th Sept. 08 Y. 1.20 for year ended Feb. 29	Apr. 26, 1909
E. E. Porter & Co., Limited	$50		$100,000	2,000	$50	$50	—	$6 for 1907	Apr. 22, 1906
Shanghai Electric & Asbestos Company, Limited	$23 sales		$125,000	5,000	$25	$25	—	Final of 4% making 8% for 1907	May 29, 1908
Shanghai Electric Construction Company, Limited	£11 buyers	£11	£300,000	30,000	£10	£10	—	First year	—

DEBENTURES

LOANS		PRICE—PLUS ACCRUED INTEREST	AMOUNT OF LOAN	OUTSTANDING	NOMINAL VALUE	RATE OF INTEREST	WHEN PAYABLE
Shanghai Municipal Debentures	1892	Tls. 92½	Tls. 50,000	Tls. 45,400	Tls. 100	5 %	June & Dec.
do	1893	,, 96	,, 125,000	" 32,000	" 100	5½ ,,	Do
do	1894	,, 104½	,, 105,000	" 60,000	" 100	6 ,,	Do
do	1895	,, 92½	,, 115,000	" 32,600	" 100	5 ,,	Do
do	1896	,, 92½	,, 140,000	" 181,800	" 100	5 ,,	Do
do	1897	,, 92½	,, 268,800	" 268,400	" 100	5 ,,	Do
do	1898	,, 104½	,, 300,000	" 60,000	" 100	6 ,,	Do
do	1900	,, 96	,, 33,900	" 31,700	" 100	5½ ,,	Do
do	1901	,, 104½	,, 250,000	" 200,000	" 100	6 ,,	Do
do	1902	,, 104½	,, 150,000	" 150,000	" 100	6 ,,	Do
do	1903	,, 104½	,, 490,500	" 490,500	" 100	6 ,,	Do
do	1904	,, 104½	,, 214,500	" 214,500	" 100	6 ,,	Do
do	1905	,, 104½	,, 320,000	" 320,000	" 100	6 ,,	Do
do	1907	,, 104½	,, 250,000	" 250,000	" 100	6 ,,	Do
Chinese Imperial Government Loan	1886 E	,, 250	,, 767,200	" 354,400	" 250	7 ,,	Mar. & Sept
Shanghai Land Investment Co., Debentures	1890	,, 102	,, 250,000	" 250,000	" 100	6 ,,	May & Nov.
do	1892	,, 96	,, 250,000	" 250,000	" 100	5½ ,,	June & Dec.
do	1894	,, 101	,, 250,000	" 250,000	" 100	6 ,,	Mar. & Sept.
do	1896	,, 92½	,, 250,000	" 250,000	" 100	5 ,,	June & Dec.
do	1900	,, 102	,, 250,000	" 250,000	" 100	6 ,,	April & Oct.
do	1901	,, 102	,, 250,000	" 250,000	" 100	6 ,,	June & Dec.
do	1901	,, 96	,, 100,000	" 100,000	" 100	5 ,,	May & Nov.
do	1902	,, 102	,, 400,009	" 400,000	" 100	6 ,,	June & Dec.
do	1905	,, 102	,, 250,000	" 250,000	" 100	6 ,,	Do
Shanghai Waterworks Co., Debentures	1894	,, 103	,, 100,000	" 100,000	" 100	6 ,,	Mar. & Sept.
do	1896	,, 92½	,, 100,000	" 100,000	" 100	5 ,,	June & Dec.
do	1899	,, 103	,, 50,000	" 50,000	" 100	6 ,,	Do
do	1900	,, 103	,, 100,000	" 100,000	" 100	6 ,,	Mar. & Sept.
do	1902	,, 103	,, 100,000	" 100,000	" 100	6 ,,	Do
do	1903	,, 103	,, 100,000	" 100,000	" 100	6 ,,	June & Dec.
Perak Sugar Cultivation Co., Debentures	1902	,, 101	,, 200,000	" 200,000	" 100	7 ,,	April & Oct.
Shanghai Gas Co., Debentures	1897	,, 92½	,, 100,000	" 100,000	" 100	5 ,,	Do
do	1899	,, 102	,, 1,000,000	" 100,000	" 100	6 ,,	May & Nov.
do	1900	,, 102	,, 2,000,000	" 200,000	" 100	6 ,,	June & Dec.
Shanghai and Hongkew Wharf Co., Debentures	1902	,, 100½	,, 799,800	" 799,800	" 100	6 ,,	Do
Astor House Co., Debentures	1905	,, 103	,, 500,000	¶ " 500,000	" 100	7 ,,	Do
British Municipal Council, Hankow	1901	Sh. ,, 105	H'kow Tls 100,000	H'kow Tls 100,000	" 100	7 ,,	June & Dec.
Shanghai Club Debentures	1907	,, 96	Tls. 170,000	Tls. 170,000	" 100	6 ,,	Do
Country Club Debentures		,, 97	,, 139,000	" 139,000	" 100	6 ,,	Do
do	1907	,, 97	,, 92,000	" 92,000	" 100	6 ,,	Do
Lane Crawford & Co., Debentures	1907	,, 100	,, 110,000	" 110,000	" 100	7 ,,	Mar. & Sept.
Anglo-French Land Debentures	1908	,, 102½	,, 250,000	" 250,000	" 100	6 ,,	June & Dec.

SINGAPORE SHARE QUOTATIONS

(Courtesy Messrs. Fraser & Co., Brokers, Singapore, May, 1909)

Date of Formation	Capital	Capital paid up	No. of Shares Issued	Issue Value	Paid up	Reserve	Last Dividend	Name	Buyers.	Sellers.	Closing Quotations
								MINING			
1903	$300,000	300,000	30,000	10	10		10% for year ending 31-3-08	Belat Tin Mining Co., Ltd.	8.00	8.25	8.00
1907	$300,000	225,000	22,500y	10	10			Bruang Ltd.	7.00	7.25	7.00
1901	$600,000	600,000	60,000	10	10	25,000	10% for year ending 30-4-08	Bruseh Hydraulic Tin Mining Co., Ltd.	7.50	8.00	7.50
1903	£500,000	444,769	444,769a	1	1			Duff Development Co., Ltd.	5.50	6.00	6.00
1907	$400,000	375,000	37,500b	10	10			Kanaboi, Ltd.	1.00	1.25	1.25
1901	£60,000	60,000	60,000	1	1		2/- interim for 1908	Kinta Tin Mines, Ltd.	9.75	10.25	9.75
1906	£100,000	100,000	100,000	1	1			Kledang Tin Mining Co., Ltd.	3.75	4.25	3.75
1905	$150,000	99,000	9,900c	10	10	6,485.68	35% for year ending 31-12-07	Kuantan Tin Mining Co., Ltd.	2.50	3.50	3.50
1906	£120,000	120,000	120,000	1	1			Lahat Mines Ltd.	7.25	7.50	7.50
1906	£30,000	30,000	30,000	1	1			Malaya and Siam Corporation, Ltd.	....	5/-	5/-
1906	$450,000	450,000	45,000	10	10			Malacca Tin Dredging Co., Ltd.	2.50	2.75	2.50
1906	£250,000	179,500	500,000h	5/-	5/-			Pahang Consolidated Co., Ltd.	1.4.9	1.6.0	1.4.9
			54,500	1	1			" " " 7% *Pref.*	....	....	nominal.
1907	£100,000	80,000	80,000i*	1	1			Pengkalen, Ltd.	9.00	9.10	9.00
1904	£120,000	100,000	100,000d	1	1	6,000	45% for year ending 30-6-07	Pusing Lama Tin Mines, Ltd.	4.00	4.25	4.00
1907	$450,000	300,000	30,000g*	10	10			Rahman Hydraulic Tin Ltd	....	7.50	7.50
1905	£27,000	27,000	27,000e	1	1		1/- interim during 1907	Rambutan, Ltd.	....	6.50	6.50
1892	£200,000	191,250	50,000	1	1	4,873	1/- paid January 1901	Raub Aust. Gold Ming. Co., Ltd. *Fully pd.*	7.50	7.75	7.75
			150,000	1	18/10		1/- " " "	" " " *Contributory*	7.00	7.25	7.25
1905	£40,000	40,000	40,000	1	1			Redhills Tin Mining Co., Ltd.	3.00	3.25	3.00
1898	Gs2,500,000	2,500,000	25,000	100	100		100% for year ending 31-12-08	Redjang Lebong Mining Co., Ltd.	....	....	1015.00
1900	$110,000	110,000	22,000	5	5		3% for year ending 22-1-09	Royal Johore Tin Mining Co., Ltd	1.20	1.30	1.30
1907	$550,000	500,000	50,000o*	10	10			Salak South, Ltd.	5.50	5.75	5.75
1907	£80,000	80,000	80,000	1	1			Sempam Tin Mines, Ltd.	1.25	2.00	2.00
1906	$850,000	850,000	85,000	10	10	25,000	10% for year ending 31-12-08	Serendah Hydraulic Tin Ming. Co., Ltd.	7.00	7.15	7.00
1899	$230,000	230,000	23,000	10	10		3% for ½ year ending 31-12-08	Sipiau Tin Co., Ltd.	4.50	5.00	4.50
1907	£90,000	70,000	70,000s	1	1		-/6 interim for 1908	Tekka, Limited	11.25	11.50	11.25
1902	£160,000	160,000	160,000	1	1		5/- during 1907	Tronoh Mines. Ltd.	9.10	9.25	9.10
								RUBBER			
1905	£150,000	137,062 10/-	46,500	1	1		30% for year ending 31-12-08	Anglo-Malay Rub. Co., Ltd. *Fully paid*	6.0.0	6.2.6	6. 0. 0.
			103,500	1	17/6		" " " " "	" " " *Contributory*	5.17.6	6.0.0	5. 17. 6
1905	$200,000	126,000	12,600f*	10	10	7,400	12½% interim for 1908	Balgownie Rub. Estate Ltd. *Fully paid*	34.50	35.00	34.50
1904	£30,000	20,187 10/-	19,000	1	1			Batu Caves Rub. Co., Ltd.	4.17.6	5.0.0	4. 17. 6
			4,750i	1	5						
1906	£80,000	70,000	70,000v*	1	1		5% for year ending 31-3-08	Batu Tiga (Selangor) Rubber Co., Ltd.	1.9.6	1.10.3	1. 9. 6
1907	£30,000	21,000	18,000n*	1	1			Bukit Lintang Rubber Estates, Ltd.	1.9.0	1.10.0	1. 10. 0
			6,000	1	10/-			" " *Contributory*	19/6	1.0.6	19/6
1903	£70,000	66,700	66,700j	1	1		24% for year ending 31-12-08	Bukit Rajah Rubber Co., Ltd.	7.12.0	7.15.0	7. 12. 0
1906	£35,000	27,000	6,000	1	1			Castlefield (K.) R. Estate, L., *Fully pd.*	1.11.0	1.12.6	1. 11. 0
			24,000	1	17/6			" " " " " *Contributory*	1.9.0	1.10.0	1. 9. 0
1906	$150,000l	125,000	12,500k	10	10			Castlewood Rubber Co., Ltd.	3.75	4.00	4.00
1904	£16,000	16,000	10,000	1	1		17½% interim for 1908	Cicely Rubber Estates Co., Ltd.	8.10.0	9.0.0	8. 10. 0
			6,000	1	1		20% interim for 1908	" " " " 5% *Pref.*	....	....	8. 12. 6
1905	£75,000	58,507	55,007l	1	1	1,000	17½% for year ending 31-12-08	Consolidated Malay Rub. Estates, Ltd	4.10.0	4.16.0	4. 16. 0
			7,000	1	10						
1906	110,000	102,500	102,500u*	1	1		12% for year ending 31-12-08	Damansara (Selangor) Rubber Co., Ltd.	3.2.6	3.5.0	3. 2. 6
1906	£310,000	274,973-5	181,454m	1	1	8,784	15% for year ending 31-12-08	Highlands & Lowds. Para Rub. Co., Ltd.	2.17.6	2.18.0	2. 18. 0
			123,546	1	15/-			" " " " *Contributory*	2.5.6	2.10.0	2. 5. 6
1905	£50,000	36,500	23,000	1	1			Kapar Para Rubber Estates, Co., Ltd.	2.11.0	2.15.0	2. 12. 6
			27,000	1	10/-			" " " *Contributory*	....	....	1. 17. 6
1906	£180,000	180,000	180,000	1	1		3% for year ending 30-6-08	Kuala Lumpur Rubber Co., Ltd.	2.1.6	2.3.6	2. 1. 6
1907	£100,000	81,000	90,000r*	1	18/-			Labu (F. M. S.) Rubber Co., Ltd.	1.15.0	1.17.6	1. 17. 6
1907	£320,000	232,395	197,395c*	1	1		10% for year ending 31-12-08	Lanadron Rubber Estates, Ltd.	3.0.0	3.5.0	3. 0. 0
			70,000	1	10/-			" " " *Contributory*	1.19.6	2.0.9	2. 0. 9
1906	Gs 135,000	135,000	580	250	250			Langen Rub. and Cocoanut Co., Ltd.	262.50	275.00	262.50
1908	£125,000	75,000	60,000p*	1	1			Ledbury Rubber Estates Ltd.	1.11.0	1.12.6	1. 11. 0
			40,000	1	7/6			" " "	17/-	17/9	17/-
1895	£100,000	98,324 8/-	883,244d*	2/-	2/-	4,000	60% for year ending 31-12-08	Linggi Plantations Ltd., *Ordinary*	1.0.6	1.1.0	1. 0. 6
			10,000	1	1		7% for year ending 31-12-08	" " " 7% *Pref.*	....	....	1. 0. 0
1907	£140,000	107,000	107,000n	1	1			London Asiatic R. & Produce Co., Ltd.	1.14.0	1.15.0	1. 15. 0
1906	£300,000	300,000	115,000	1	1		7½% for year ending 31-12-07	Malacca Rubber Plants., Ltd. 7½% *Pref.*	2.12.6	2.15.0	2. 12. 6
			185,000	1	1			" " *Ordinary*	2.7.6	2.10.0	2. 10. 0
1903	£30,000	22,500	22,500o	1	1		45% for year ending 31-12-08	Pataling Rubber Estates Synd. Ltd.	10.15.0	11.0.0	10. 15. 0
1906	£85,000	85,000	85,000	1	1			Perak Rubber Plantations, Ltd.	1.16.0	1.17.0	1. 16. 0
1906	$250,000	225,000	22,500	10	10			Ragalla Rubber Co., Ltd. *Ordinary*	18.00	18.50	18.50
		25,000	2,500	10	10			" " " 8% *Preference*	18.00	18.50	18.50
1904	£20,000	16,943 8/-	20,000a*	1	1			Sagga Rubber Company, Limited	3.4.0	3.7.6	3. 4. 0
1904	$100,000	100,000	1,000j*	100	100	20,000	25% for year ending 31-1-09	Sandycroft Rubber Co., Ltd.	475.00	480.00	475.00
1907	£100,000	76,800	48,000s*	1	1			Seafield Rubber Co., Ltd.	2.7.6	2.10.0	2. 7. 6
			48,000	1	12/-			" " " *Contributory*	2.0.0	2.2.6	2. 0. 0
1898	£30,000	30,000	300,000	2/-	2/-	3,000	75% for year ending 31-12-08	Selangor Rubber Co., Ltd.	1.9.0	1.10.0	1. 9. 0
1906	£65,000	65,000	65,000	1	1			Shelford Rubber Estate, Ltd.	1.6.6	1.7.0	1. 7. 0
1905	$500,000	500,000	5,000	100	100			Singapore Rubber Co., Ltd.	150.00	170.00	150.00
1903	$250,000	250,000	2,500	100	100			Singapore & Johore Rub. Co., Ltd.	170.00	175.00	175.00
1906	£175,000	174,615	174,615q*	1	1		3% for year ending 31-3-08	Straits Settlements (B.) Rub. Co., Ltd.	1.7.6	1.8.0	1. 7. 6
1906	£110,000	100,000	100,000k*	1	1			Sungei Kapar Rubber Co., Ltd.	2.7.6	2.10.0	2. 7. 6
1907	£70,000	49,875	14,000	1	1			Sungei Salak Rubber Co., Ltd.	1.12.6	1.15.0	1. 12. 6
			41,000	1	17/6			" " " *Contributory*	1.10.0	1.12.6	1. 10. 0
1904	£50,000	45,710	41,920p	1	1			Sungei Way (Selangor) Rub. Co., Ltd.	2.15.0	2.17.6	2. 15. 0
			7,580	1	10			" " " *Contributory*	....	....	1. 10. 0
1907	£200,000	154,000	154,000t*	1	1		5% for year ending 31-12-08	United Serdang (S.) R. Plantations, Ltd.	2.10.0	2.12.6	2. 10. 0
1904	£60,000	50,600	506,000q	2/-	2/-		25% interim for 1908	Vallambrosa Rubber Co., Ltd.	1.3.6	1.4.0	1. 4. 0
								GENERAL			
1894	£5,377.10.0	4,805	7,688b*	12/6	12/6	1,500	15% for year ending 31-12-07	Bells Asbestos Eastern Agency, Ltd.	6.25	8.00	6.25
1908	$250,000	202,500	2,025m*	100	100			Brunei Oil Royalty, Ltd	....	100.00	100.00
1907	$1,500,000	1,099,672	27,083l*	10	10		5% interim for 1908	Eastern Smelting Co., Ltd.	6.65	6.75	6.75
			118,406	10	7						
1898	$225,000	225,000	4,500	50	50	150,000	15% & 2½% bon. for yr. end. 31-12-08.	Fraser & Neave, Ltd.	142.50	145.00	142.50
1865	$15,000,000	15,000,000	120,000	125	125	15,000,000t 14,500,000u 250,000v	£2-0-0 per share and bonus of 5/- at ex.- 1/8¾ half year ending 31-12-08	Hongkong & Shanghai Bank'g Corpt'n.	....	....	90.0. 0
1905	$2,400,000	2,400,000	18,000	100	..	75,000	2½% for year ending 31-10-08	Howarth Erskine, Ltd.	85.00	90.00	90.00
			6,000	100	..		7% for year ending 31-10-08	" " 7% *Pref*	....	100.00	100.00
1896	$1,000,000	1,000,000	6,000	100	100	600,000	10% for year ending 31-12-07	Katz Brothers, Ltd. *Deferred*	....	125.00	125.00
			4,000	100	100		8% " " " "	" " 8% *Cum. Pref*	....	....	150.00 nominal
1901	$34,000	34,000	3,400	10	10		20% for year ending 31-10-08	Maynard & Co., Ltd.	19.00	19.50	19.50
1899	$875,000	875,000	6,000	100	100	175,000	5% for year ending 31/12/08	Riley, Hargreaves & Co., Ltd.	57.50	60.00	60.00
			2,750	100	100		7% for year ending 31/12/08	" " " " 7% *Pref.*	95.00	97.50	95.00
1898	£3,500,000	3,300,000	2,300,000	1	1		10% for 1907	Shell Transport & Trading Co., Ltd. *Ord.*	3.0.0	3.2.6	3. 0. 0
			100,000s*	10	10			" " " " " " *Pref.*	....	....	nominal
1903	$600,000	250,000	25,000r	10	10		7½% for year ending 30-6-08	Singapore Cold Storage Co., Ltd.	9.25	9.50	9.50
1891	$30,000	30,000	600	50	50	23,000	10% for year ending 31-7-08	Singapore Dispensary Ltd.	....	50.00	50.00
1903	£400,000	400,000	400,000	1	1			Singapore Electric Tramways, Co., Ltd.	4/-	4/3	4/3
1904	$160,000	112,000	1,120e*	100	100	11,200	5% for year ending 30/6/07	Straits Engineering Syndicate, Ltd.	....	30.00	30.00
1884	$200,000	200,000	2,000	100	100	35,000	10% during 1907	Straits Ice Co., Ltd.	....	150.00	150.00
1890	$500,000	498,000	4,980h*	100	100	760,000w	10% for year ending 31-12-08	Straits Steam Ship Co., Ltd.	192.50	195.00	192.50
1887	$3,000,000	3,000,000	300,000	10	10	1,250,000 1,222,409x	10% & 5% bon. for half yr. end. 30-9-08	Straits Trading Co., Ltd.	51.50	52.00	51.50

DEBENTURES

Name	Buyers.	Sellers.	Closing Quotations
Howarth Erskine, Ltd. 6% .... $ 600,000	....	1%	1% prem.
Riley, Hargreaves & Co., Ltd. 6% .284,000	....	1%	1% prem.
Sandycroft Rub. Co., Ltd. 7½% 22,100	....	....	par.
Singapore Electric Tramways, Co., Ltd. 5% £350,000	....	....	nominal
Singapore Municipal 6% 400,000	....	....	20% prem. nom.
" " 5% 1,878,000	7%	....	7% prem.
" " 4½% 1,600,000	3%	5%	3% prem.
" " 4% 602,900	6%	par.	6% discount
Straits Engineering Syndicate, Ltd. 6% 45,000	....	par	par.
Tanjong Pagar Dock Board 5% .1,050,000	par	....	par.

a { 11,282 unissued
 { 43,949 6% debenture
b 2,500 unissued
c 5,100 "
d 20,000 "
e { 100,000 " *Ord.*
 { 45,500 " *Pref.*
f 6,250 "
g 3,300 "
h 2,500 "
i 12,993 "
j { 4,140 "
 { 8,60 subscribed by employees
k £40,000 6% Debentures 33,000 unissued
l 7,500 "
m 500 to be issued to employees

n 94,000 unissued.
o 35,000 "
p Special Gold Reserve Fund
q Silver Reserve Fund.
r Insurance Fund.
s Sundry Reserves.
t Sundry Reserves.
u 7,500 unissued.
v 20,000 "
w 4,595 part-paid shares
x 916 unissued
y 52,605 unissued.
z 16,756 "
a* 480 "
b* 7,400 "
c* 15,000 unissued.
d* 20 "

e* 20,000 "
f* 221 7½% Debentures.
g* 10,000 unissued
h* 4,511 "
i* 475 "
j* 6,000 "
k* 5,000 "
l* 25,000 "
m* 385 forfeited
n* 10,000 unissued.
o* 4,000 "
p* 46,000 "
q* 7,500 "
r* £10,000 Convertible 6% Debentures.
s { 200,000 unissued.
 { £720,000 Reserve.

YOKOHAMA SHARE QUOTATIONS

COURTESY A. C. HUTTON POTTS, SHARE AND GENERAL BROKER, YOKOHAMA, MAY, 1909.

STOCKS.	CAPITAL.	NO. OF SHARES.	ISSUE VALUE.	AMOUNT PAID UP.	RESERVE FUND.	AT WORKING ACCOUNT OR CARRIED FORWARD.	DATE.	LAST DIVIDEND.	FOR TERM.	CLOSING QUOTATION.
Brett & Co., Ltd.	-Y- 28,000	2,800	-Y- 10	-Y- 10			31-12-07	10%	for 1 year	10 Nominal.
Club Hotel, Ltd.	185,000	1,850	100	100	3,000	-Y- 768.96	31-3-08	7%	for 1 year	70 Buyers.
Grand Hotel, Ltd.	500,000	5,000	100	100	10,000		31-12-08	3%	for ½ year	100 Buyers.
Helm Bros., Ltd.	186,000	3,720	50	50	25,000	-Y- 6,395.55	31-12-08	17½%	for 1 year	80 Sales.
Langfeldt & Co., Ltd.	150,000	1,500	100	100		Dr. 2,038.97	31-12-08		for ½ year	60 Nominal.
C. Nickel & Co., Ltd. †	500,000	20,000	25	25		1,782.10	31-10-08	20%	for 1 year	41 Sales.
Yokohama Engine and Iron Works *	500,000	10,000	50	50	50,000	-Y- 29,421.19	31-5-08	10%	for 1 year	70 Sales
Oriental Hotel, Ltd., Ordinary }	250,000	3,000	50	50	306,090.49		31-8-07	12%	for 1 year	50 Nominal.
Oriental Hotel, Ltd., Preference }		2,000	50	50				8%	for 1 year	50 Nominal.
The Union Estate and Investment Co., Ltd. ‡	1,000,000	10,000	100	100	6,000.00	1,753.03	30-9-08	7%	for 1 year	100 Nominal.

† 285,000 unissued.
‡ 475,000 unissued.

*-Y- 390,000 issued.
110,000 unissued.

DEBENTURE LOANS.	AMOUNT OF LOAN.	FACE VALUE OF DEBENTURES.	RATE OF INTEREST.	INTEREST PAYABLE.	CLOSING QUOTATION.
Brett & Company, Limited	11,500.00	100.00	7%	1 June and 1 Dec.	95 Sales.
Yokohama United Club	250,000.00	100.00	7%	30 June and 31 Dec.	100 Sales.
C Nickel & Company, Limited	50,000.00	100.00	8%	1 May and 1 Nov.	110 Sellers.
Oriental Hotel, Limited	250,000.00	100.00	8%	1 April and 1 Oct.	100 Sellers.
Union Estate and Investment Co., Limited	250,000.00	100.00	6%	30 June and 31 Dec.	95 Sellers.

JAPANESE STOCKS.	FACE VALUE.	AMOUNT PAID UP.	LAST DIVIDEND.	DIVIDEND PAYABLE.	CLOSING QUOTATION.
Bonds & Debentures.					
Exchequer Bonds 2nd issue	-Y-100	-Y-100	5%	March and Sept.	-Y-100.20
Exchequer Bonds 3rd issue	100	100	5%	March and Sept.	,, 99.20
Consolidated Bonds (Seiri)	100	100	5%	June and Dec.	,, 94.50
War Bonds (Gunji)	100	100	5%	June and Dec.	,, 94.50
Imperial 5% Bonds	100	100	5%	March and Sept.	,, 92.80
Special 5% Bonds (issued 1906)	100	100	5%	June and Dec.	,, 94.65
Yokohama Water Works Bonds	100	100	6%	June and Dec.	,, 99.00
Yokohama City Public Loan Bonds	100	100	6%	March and Sept.	,, 98.00
Osaka City Harbour Construction Bonds	100	100	6%	June and Dec.	,, 100.00
Osaka City Public Loan Bonds	100	100	6%	June and Dec.	,, 99.50
Kawasaki Dock Yards Co.'s Debentures	100	100	7%	June and Dec.	,, 99.00
Tokyo Race Associations	500	500	30%	June and Dec.	,, 100.00
Railways & Electric Trams.					
Tokyo Railway Company, Limited	50	50	4%	June and Dec.	,, 57.30
Yokohama Electric Tramway Company, Limited	50	50	6%	July and Jan.	,, 39.50
Keihin Electric Tramway Company, Limited	50	50	10%	June and Dec.	,, 64.50
Southern Manchurian Railway Co., Ltd.	100	20	6%	June and Dec.	,, 28.50
Hanshin Electric Tramway Co., Ltd.	50	50	12%	May and Nov.	,, 106.00
Cotton Spinnings.					
Kanegafuchi Cotton Spinning Company, Limited	50	50	14%	July and Jan.	,, 94.75
Fuji Gassed-yarn Company, Limited	50	50	14%	July and Jan.	,, 95.00
Tokyo Cotton Spinning Company, Limited	50	50	5%	July and Jan.	,, 41.15
Imperial Hemp Weaving Company, Limited	50	50	12%	July and Jan.	,, 64.00
Nisshin Boseki Kabushiki Kaisha	50	12½	....	—	,, 12.50
Sugar & Beer Cos.					
Dai-nippon Sugar Refinery Company, Limited	50	50	15%	May and Nov.	,, 19.75
Ensuiko Sugar Refinery Company, Limited	50	15	20%	June and Dec.	,, 33.50
Dai-nippon Beer Company, Limited	50	50	15%	July and Jan.	,, 72.70
Kirin Brewery Company, Limited	50	50	6%	July and Jan.	,, 46.50
Docks & Steamships.					
Yokohama Dock Company Limited	50	33	12%	June and Dec.	,, 53.50
Uraga Dock Company, Limited	50	50	....	July and Jan.	,, 11.00
Kawasaki Dockyard Company, Limited	50	50	12½%	Feb. and Aug.	,, 55.70
Nippon Yusen Kaisha	50	50	12%	May and Nov.	,, 76.00
Hokkaido Tanko S. S. Company, Limited	50	50	14%	July and Jan.	,, 47.65
Miscellaneous.					
Tokyo Electric Light Company, Limited	50	50	11%	June and Dec.	,, 90.80
Tokyo Gas Company, Limited	50	50	13%	July and Jan.	,, 96.45
Yokohama Union Electric Light Company, Limited	50	50	14%	July and Jan.	,, 89.00
Fuji Paper Mills	50	50	6%	June and Dec.	,, 32.50
Otaru Timber Company, Limited	50	50	....	March and Sept.	,, 10.50
Hoden Petroleum Company, Limited	50	50	36%	April and Oct.	,, 90.70
Tokyo Rope Manufacturing Company, Limited	50	50	20%	June and Dec.	,, 103.00
Japan Horse Improvement Company, Limited	50	50	15%	March and Sept.	,, 6.00
Tokyo Stock Exchange Company	50	50	11½%	June and Dec.	,, 140.75
Osaka Electric Light Company, Limited	50	50	15%	July and Jan.	,, 124.50
Kobe Electric Light Company, Limited	50	50	14%	July and Jan.	,, 86.00

BANGKOK SHARE QUOTATIONS

(COURTESY MESSRS. EDWARDS & CO., BANGKOK, SIAM.)

NAME.	BUYERS.	SELLERS.	QUOTATION.	ESTABLISHED.	CAPITAL.	NO. OF SHARES.	ISSUE VALUE.	AMOUNT PAID UP.	RESERVE FUND	LAST DIVIDEND.	WHEN PAID OR PAYABLE.
Siam Electricity Co., Ltd.	Tcs. —	Tcs. 370	Tcs. 370	1901	Tcs. 3,383,296	35,000	£ 10	£ 350,000	Tcs. 448,174.31	12% & 12½ T. bon.	Feb. 29, 1908
Paknam Railway Co., Ltd.	,, —	,, —	,, 185	1893	,, 400,000	5,000	Tcs. 80	Tcs. 400,000	,, 80,000	6% & 2 Tcl. bonus for ½ year ending	Dec. 31, 1907
Siam Tramway Co., Ltd.	,, —	,, 150	,, 150	1905	,, 1,450,000	6250 Shares 7250 Deb. 1000 P. Shares	,, 100	,, 1,450,000	—	2%	Mar. 31, 1908 Sept. 30, ,,
Meklong Railway Co., Ltd.	,, —	,, 105	,, 105	July 12, 1907	,, 2,230,000	22,300	,, 100	,, 2,230,000	17,316.22	—	—
Bangkok Manufact. Co., Ltd.	,, —	,, 130	,, 135	1898	,, 400,000	4,000	,, 100	,, 400,000	—	None	—
Howarth Erskine, Ltd.	,, —	,, —	,, 140	1905	$ 2,400,000	24,000	$ 100	$ 2,400,000	$ 40,000	5%	Oct. 31, 1908
Bangkok Dock Co., Ltd.	,, —	,, —	,, 150	1865	Tcs. 1,000,000	6,000	Tcs. 100	Tcs. 1,000,000	Tcs. 270,000 60,000	12½% & 2½ Bonus	Dec. 31, 1907
Siam Steam Packet Co.	,, —	,, 70	,, 70	1898	,, 190,000	2,625	,, 50	,, 131,250	,, 36,000	14%	Dec. 31, 1907
Siam Commercial Bank	,, —	,, —	,, 1,100	1906	,, 3,000,000	3,000	,, 1,000	,, 3,000,000	,, 140,000	5%	Mar. 31, 1907
Menam Motor Boat Co., Ltd.	,, —	,, —	,, 100	1905	,, 200,000	2,000	,, 100	,, 125,000	—	—	—
Transport Co., Motor, Ltd.	,, —	,, 100	,, 100	1906	,, 200,000	4,000	100	£ 4, per Share	—	—	—
Jenderata Rubber Co *	,, —	,, —	79		£ 17,580		£ 10				
Siam Steam Navigation Co., Ltd.	,, —	,, —	320		Tcs. 2,000,000		Tcs. 200				

*6 Calls paid

PHILIPPINE SHARE REPORT

JUNE 1ST, 1909

NAME	WHEN ESTABLISHED	AUTHORIZED CAPITAL	ISSUE VALUE OF SHARE	NO. OF SHARES	SUBSCRIBED	PAID UP	RESERVE	WORKING %	DATE	LAST DIVIDEND	CLOSING QUOTATIONS
American Drug Store	1908	₱ 100,000	₱1,000	100	40	₱1,000	......	₱ 5,000	Jan. 4, 1909	....	No Sellers.
*Banco Español Filipino	1851	3,000,000	200	15,000	8,439	200	₱225,000	......	....	7% for year 1908	190 nom.
Benguet Consolidated Mining Co.	1903	2,000,000	2	1,000,000	495,000	2	......	38,000	Feb. 2, 1909	....	No Sellers.
Benguet Commercial Co., Ltd.	1908	200,000	10	20,000	7,360	10	......	......	....	7% for year 1907	₱10.
Cadwallader-Gibson Lumber Co.	1908	1,000,000	100	10,000	8,650	100	......	......	....	....	No Sellers.
*Camote-Clayton Mining Co.	1909	400,000	10	40,000	20,000	10	......	......	....	....	₱10.
*Compania Maritima	......	1,018,000	200	5,090	5,090	200	......	......	....	....	₱40 buyers
*El Varadero de Manila	......	350,000	100	3,500	3,500	100	......	......	....	....	Sellers 70
Export & Import Lumber Co.	......	200,000	200	1,000	1,000	200	......	......	....	....	No sellers.
*Fabrica de Hielo de Manila	......	350,000	50	7,000	7,000	50	......	......	....	18% for year 1908	₱80 sellers
*Germinal Cigar Factory	......	500,000	500	1,000	1,000	500	₱285,000	......	....	6% for year 1908 and 6% on capital	700 sellers
H. E. Heacock Co.	1909	100,000	100	1,000	800	100	......	......	....	First year	No sellers.
*Headquarters Mining Co. (Inc.)	1908	600,000	10	60,000	35,000	10	......	......	....	....	₱10.
Insular Lumber Co.	1907	2,000,000	200	10,000	9,000	200	......	......	....	....	No sellers.
Juan Seiboth Co., Ltd.	1908	150,000	20	7,500	500	20	......	......	....	First year	....
*La Concha Button Factory	......	75,000	100	750	750	100	......	......	....	10% for year 1908	₱110 sellers.
Lambert, Springer Co.	1908	200,000	1,000	200	80	1,000	......	......	....	....	No sellers.
Luson Stevedoring Co.	1909	250,000	25	10,000	4,200	25	......	......	....	First year	....
Newspaper Publishing Co.	1907	400,000	100	4,000	3,740	100	......	......	Dec. 31, 1908.	½ of 1% interim for 1908	No sellers.
Walter E. Olsen Co., Inc.	1909	500.000	100	5,000	2,033	100	......	......	....	First year	No sellers.
Paracale Gold Dredging Co.	1907	£10,000	£1	10,000	9,000	£1	......	......	....	....	£1.10 s.
Palomar Park Amusement Co.	1908	300,000	......	300,000	60,312	.50	......	......	....	....	₱1.
Phil. Hemp Machine Co., Ltd.	1907	1,000,000	100	10,000	8,500	100	......	......	....	....	₱100
Philippine Publishing Co.	1907	600,000	200	3,000	2,181	200	......	......	Mar. 1st, 1909	₱3 a share for 1908	₱50
Port Banga Lumber Co.	1908	100,000	1.000	100	934	93,400	None.	40,000	First Saturday in January	None	No sellers.
The Philippine Gold Dredging Co.	1907	200,000	10	20,000	20,000	10	......	......	....	....	No sellers.
*Philippine Co., Ltd.	......	750,000	10	7,500	7 500	10	......	......	....	....	₱5 buyers.
Philippine Rosin & Turpentine Co.	......	150,000	1	150,000	70,000	1	......	......	....	First year	....
The Rosenstock Pub. Co.	1908	75,000	10	7,500	6,000	10	......	......	....	....	No sellers.
*San Nicolas Iron Works	......	300,000	500	600	600	500	......	......	....	....	₱200 sellers.
San Mauricio Gold Mining Co.	1908	4,000,000	200	20,000	......	......	......	......	....	First year	No sellers.
Tarlac Railway Co.	1906	150,000	100	1,500	1,500	100	......	₱9,674.75	June 30, 1908.	....	No sellers.
Union Hemp Machine Co.	1909	50,000	10	5,000	2,600	10	......	......	....	....	No sellers.
Zamboanga Cold Storage Co.	1903	40,000	400	100	200	200	₱ 8,500	......	May 1st, 1909.	20%	₱120.

* John T. Macleod's share list

PHILIPPINE BONDS

	DATED	AUTHORIZED	ISSUED	OUTSTANDING	PAR VALUE	RATE OF INT.	WHEN PAYABLE	LAST QUOTATION
Philippine Friar Land Bonds	Feb. 1st, 1904	$7,000,000	$7,000,000	$7,000,000	$ 100	4%	Feb. 1, 1914	104[illegible]
Public Works and Permanent Improvement Bonds	March 1, 1905	$5,000,000	$2,500,000	$2,500,000	$ 100	4%	March 1, 1915	104[illegible]
Do.	Feb. 1, 1906	......	$1,000,000	$1,000,000	$ 100	4%	Feb. 1, 1916	104[illegible]
Manila Sewer and Water Works Improvement Bonds	June 1, 1905	$4,000,000	$1,000,000	$1,000,000	$ 100	4%	June 1, 1915	104[illegible]
Do.	Jan. 2, 1907	......	$2,000,000	$2,000,000	$ 100	4%	Jan. 2, 1917	104[illegible]
*Philippine Railway First Mortgage Four per cent Thirty Year Sinking Fund Gold Bonds	July 1, 1907	$15,000,000	$5,736,000	$5,736,000	$1000	4%	July 1, 1937	97

*Payment of interest guaranteed until maturity or redemption by the Philippine Government.

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THE FAR EASTERN REVIEW

VOL. VI: No. 2. MANILA, SHANGHAI AND YOKOHAMA, JULY, 1909. 25 cents U. S. Currency
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THE RULERS OF CHINA

THE HOUSE OF CH'UN

His Imperial Majesty, HSUAN TUNG,
The Emperor of China, standing by his father the Regent, Prince of CH'UN, is the new Son of Heaven and Ruler of the Middle Kingdom

ENGINEERING
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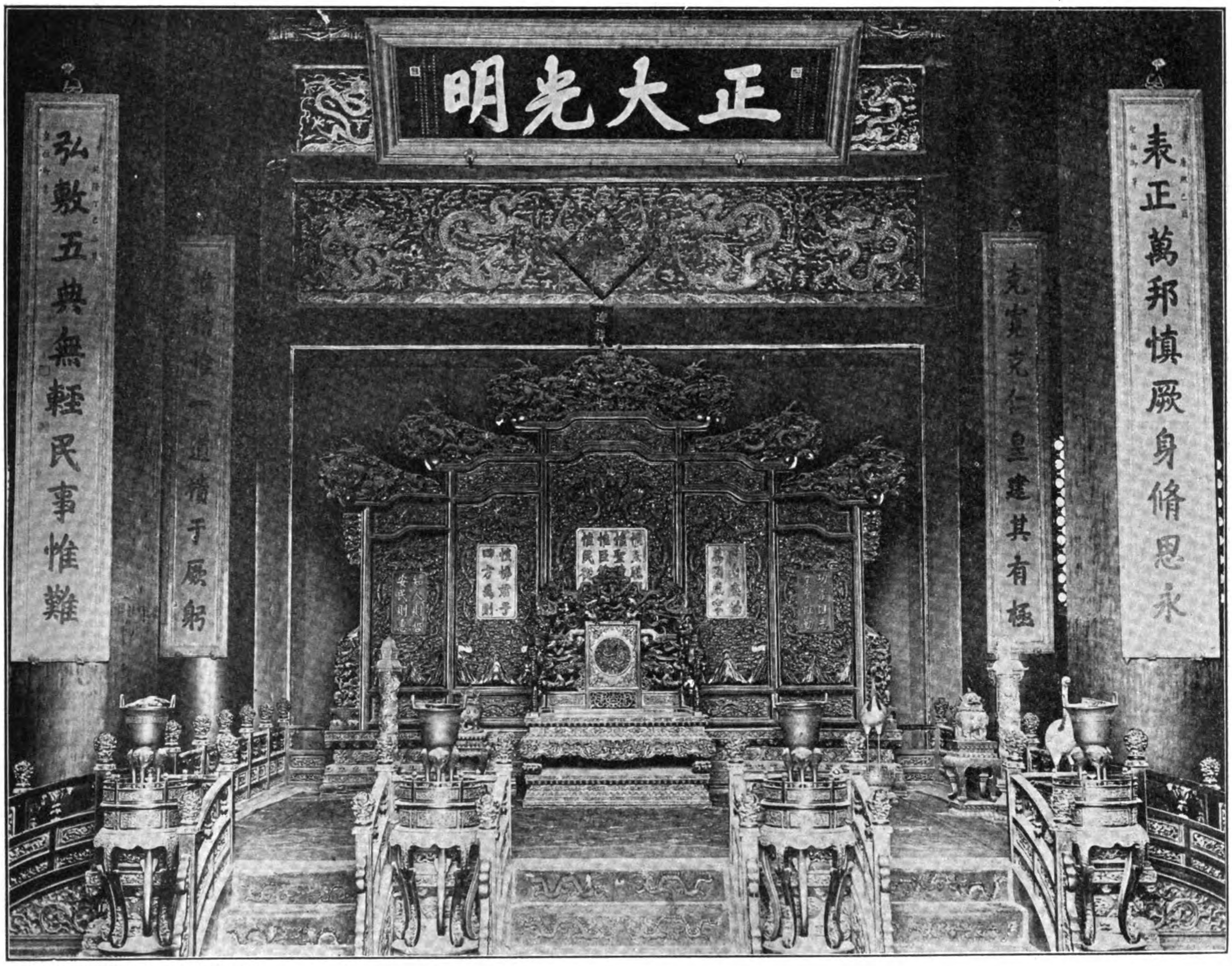
THE FAR EASTERN REVIEW
COMMERCE · ENGINEERING · FINANCE

VOL. VI. MANILA, P. I., SHANGHAI, AND YOKOHAMA, JULY, 1909 No. 2.

THE RULERS OF CHINA

(By our own correspondent.)



(*Courtesy of Denniston & Sullivan.*)

THE IMPERIAL THRONE OF CHINA. (FOURTH HALL, PEKING PALACES.)
"THE DRAGON THRONE."
THE CHARACTERS ABOVE READ "THE GREAT THRONE OF LIGHT AND BRILLIANCY."

THE PRINCE OF CH'UN

His Imperial Majesty, Tsai Feng, undiminished prince of the first degree, 5th son of Yi-huan and heir to the title of the House of Ch'un, Prince Regent of China, and father of the Emperor Hsuan Tung, is to-day the central figure in the great drama unfolding itself within the wall-bound palaces at Peking. Called to take charge of the tottering fortunes of the great Ching dynasty, by the last Decree of the Empress Dowager, it is now clearly evident that the Prince of Ch'un is making an earnest effort to defend his country from the dangers surrounding its existence as a political entity, by initiating a program to recover her lost rights, planning the expansion of the army and navy, reorganization of its financial system, and preparing the way towards its elevation as world power, through the various stages of reform leading up to constitutional government. The task set for this young prince to preserve the inheritance of his son, and deliver it intact in the years to come, is one calling for the highest attributes of statesmanship and diplomacy. Will the Regent prove equal to his trust? Is he the man of the hour, the leader who will guide China along the right paths and emerge triumphant with a reconstructed Empire, able to maintain her prestige in the family of nations? History will decide. For the present it is rather early to prophesy, but,

(*Continued on page 60.*)

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THE TIMES AND THE FAKUMEN RAILWAY

In the May issue of the FAR EASTERN REVIEW, under date of April 30th, ulto., we published an editorial on the Fakumen Railway from our own correspondent, which clearly presented and explained the motives of China in seeking the construction of this extension to the Imperial Railways of North China, and the just and reasonable demands of Japan in protesting against this violation of the Peking Agreement of 1905.

One month subsequent to the above date, the foreign editor of *The Times*, Mr. Chirol, accompanied by Dr. Morrison, the Peking correspondent of the same paper, arrived in Japan.

It appears that these well-known and able journalists made a special journey to Tokio, for the purpose of learning the Japanese side of the many outstanding issues between Japan and China, and with particular reference to the Fakumen Railway dispute, in which British interests were concerned. This question had been agitated for nearly two years, and public opinion in England gradually diverted in favor of China, and against Japan, with a tendency to weaken the existing bonds of friendship and destroy the effect of the alliance.

While in Japan, the British journalists were treated with extraordinary distinction and honor as though they were special ambassadors. Received in audience by the Emperor, and in long interviews and conferences with cabinet ministers and leading statesmen, wined, dined, and feted, and showered with courtesy and honors, they were led to see a new light and new interpretation of Japan's attitude bearing on the lengthy dispute.

There was an earnest and sincere effort made by Japan to remove all misconceptions concerning their policy in Manchuria and convince the visitors of Japan's desire to maintain the cordial and friendly relations with Great Britain.

The result of the visit appeared in a lengthy special cablegram, dated May 30th, to *The Times*, in which Mr. Chirol fully indorsed and supported Japan's attitude, and exposed the intrigue by which China hoped to create discord and weaken the alliance. With the exception of a few minor facts, Mr. Chirol fully confirmed and echoed the sentiments of our editorial published in the May number of this paper.

And so practically terminates public agitation of the much discussed and advertised Fakumen dispute. It is to be deeply regretted that China maneuvered herself and her newspaper friends into an untenable position, and now all that remains is for everybody to climb down gracefully, acknowledge their error, and undo the work of the last two years.

China has nothing to fear from a straightforward presentation of her case and a return to reason. Her friends cannot press a cause which has for its purpose the creation of international jealousies, discord, and ultimate strife.

CHINA'S INGRATITUDE

After serving the Chinese Government for 31 years as Chief Engineer of the Imperial Railways of North China, Mr. C. W. Kinder, C.M.G., has finally severed his connection with the enterprise he has built up, and departed for his home in England. And so closes another chapter in China's campaign to eliminate foreign guidance in her industrial affairs. The departure of the man who gave the best of his life to China's material advancement, will be viewed in the light of a distinct triumph by those officials responsible for his resignation, and another step forward towards the goal they have set their heart on.

The effect on the foreign mind, however, will be quite different. The circumstances under which Mr. Kinder was practically forced to resign his post to maintain his self respect and the confidence of his fellow countrymen are such as must surely react on China in the long run. China owes one of her most valuable revenue assets to the engineering ability of the man whom she has now thrown over—with no expression of appreciation for his valuable services. The Imperial Railways of North China stand as an example of the result that honest and efficient railway construction and management can bring to the Government. On a total capital account of a little less than $50,000,000 silver, 600 miles of road have been constructed and equipped, stations and other permanent improvements carried out, and the net earnings for last year show a profit of nearly $8,000,000 or 16%. The working expenses of the road, in relation to earnings, are 28 per cent, a remarkable showing, and proof of high executive ability and sterling honesty in expenditures. The handsome returns of this line opened the eyes of the Chinese Government and fixed their determination to preserve the railways for themselves.

There is something due to the man whose administrative talents assisted towards making such a showing possible, and it was to be hoped that the Chinese Government would at least treat him fairly, if not actually reward him. The letter of Mr. Kinder to the Director General of Railways in Peking not only opens our eyes to the base ingratitude displayed by the Chinese authorities to a devoted and loyal servant, but confirms the many rumors and suspicions that China is not living up to the strict letter of her obligations. No one was in a better position to interpret China's attitude on railway matters, and when the retiring executive tells his Chinese official superior that he "finds the Board, as at present constituted, is distinctly hostile to what he considers as China's true interests, as well as *the honest reading both of Loan Agreements and Protocol*, it explains the attitude of the British group of capitalists in refusing to loan any more money to China, except under terms that guarantee honest expenditure of the funds provided, and confirms many statements which have been shrouded in uncertainty. The letter of Mr. Kinder, which we reproduce from the *Peking and Tientsin Times*, is as follows:

April 2nd, 1909.

H. E. LIANG-SHI-YI,
Director General, Peking.

Dear Sir:—

After giving more consideration to your offer to make me Advisory Engineer to the Board, residing in London, I have decided that it is wisest not to accept the position.

I find that the Board, as at present constituted, is distinctly hostile to what I consider as China's true interests as well as the honest reading both of Loan Agreement and Protocol.

The Board has also persistently ignored my position and authority in a marked degree ever since Mr. Chow resigned his post as Director.

Under these circumstances it would be impossible for me to serve with the full respect and loyalty essential to any one acting in an advisory position.

With regard to pay in lieu of leave, I trust you will reconsider your proposal to give me a bonus of £600, which I prefer not to accept. I merely want what I am fairly entitled to and not presents in any form whatever.

I shall be obliged if you will let me have an immediate reply.

Yours truly,
(Signed) C. W. KINDER.

From September, 1878, to April, 1909, a period of 31 years, Mr. Kinder enjoyed just 15 months' leave, and when he retired he was entitled to the amount of 21 months accrued leave or salary in lieu thereof, amounting to £3,500. His application for this amount was refused, and in return he was offered a bonus of £600 and a three years' position as Advisory Engineer to the Board, residing in London, or in other words he was to continue his labors for three years to obtain a sum that was his due. The Chinese Director of Railways offered him £2,000—a year's pay—which Mr. Kinder accepted rather than prolong a matter which must have been galling to his self-respect and pride. In sharp contrast to this shabby treatment of Mr. Kinder was that meted out to M. Jadot who constructed the Peking-Hankow line. After five years' service he was awarded a bonus of £10,000 for building the railway, and £2,000 for the construction of the Yellow River Bridge. It will be a long while before this action of H. E. Liang-Shih-Yi will be forgotten, and so long as he remains in the Railway Board, the Chinese Government cannot expect the confidence of foreign investors in their future railway schemes.

Since the above was written a man of marked ability and honesty has been appointed as President of the Board of Communications, and, under H. E. Hsu Shih Cheng, the affairs of the Board are running more smoothly, and his administration will do much towards restoring public confidence and trust.

THE DEVELOPMENT OF MINDANAO

The industrial conference, held at Zamboanga this month, in which the representatives planters and businessmen of the different colonies of Mindanao participated, marks the beginning of a new era in the development of the unlimited resources of that section of the Philippines. The spirit of co-operation was largely developed and all interests had the opportunity of discussing the larger questions affecting the healthy growth of the insular industries, and of proposing intelligent solutions to everyday problems. Acting Governor Forbes, who was present at this notable gathering, had a most favorable opportunity to get in touch with the pioneers, and learn their needs, and that he was greatly interested and impressed with the progress made and the prospect of the different colonies, was demonstrated by his prompt announcement that he would ever be ready to assist these pioneers in every way possible. Their needs appealed to the strain of pioneer blood in Mr. Forbes' veins, and the settlers of Mindanao may rest assured that they have enlisted his sympathy and support.

These representatives came from Davao, Cotabato, Malabang, Iligan, Basilan, and Mati, and the similarity of conditions in each of those places made it a very simple matter to get together on the main issues. As President Frank Shepherd of the Iligan Chamber put it in a letter to the Legislative Council of the Moro Province:

"I think that the planters of the Moro Province should get together and request the Honorable Legislative Council to confer with the Government of the Philippines, and use their influence to procure a law granting the planters of the Moro Province the right to have on each plantation a sufficient number of firearms in order that they may be protected from the raids of hostile bands and depredations of wild animals, such as hogs, deer, and monkeys, which cost the planters ofthis country many thousands of dollars annually.

"We should also have a law granting us permission to import our labor, for which we could be responsible. This labor proposition is our most serious drawback, and I venture to say that it will be hundreds of years before progress can be attained towards any large developments if the planter is required to depend on the native labor, as the country is sparsely settled.

"The quantity of hemp exported from Iligan during the past fiscal year was about double that of the year preceding, and the quantity of copra exported was almost four times as great, besides we have a great increase in exportation of all minor products, such as corn, sugar, plantanas, etc., and could have done much better had we the means of protection for our plantations and laborers, from the raids of hostile Moro bands.

"Owing to not having the means of protection it has been very difficult to procure any labor, and it is impossible to hold men for any length of time on account of the various rumors of probable attack constantly afloat, which are almost as bad for our plantations as the attack themselves."

One of the greatest obstacles to progress in developing the agricultural resources of Mindanao is the lack of labor and the absence of any means of forcing labor, imported from other islands under contract at great expense, to carry out its obligations. Upon arrival in a Mindanao colony, the native laborers desert or refuse to work and the planter has no recourse. This matter was discussed and the Acting Governor General promised to find relief. This is one step in the right direction.

The recent local mutiny at Davao, which exposed the unarmed planters to great danger and which was overcome by the gallant defense put up by the pioneers, has directed attention to these outposts in a marked manner. While the mutiny of the native constabulary company upon which the colony depended for protection was only local, it was a serious matter for the surprised and unprepared settler. The result has been that an American battalion will be sent there to maintain order and to restore confidence.

The Davao planters believe in the future of Davao hemp, and have put themselves on record as favoring careful government inspection and grading with a view to restoring the reputation of the islands as producers of standard hemp grades that may be relied upon and to insure financial support. Commenting on this the *Mindanao Herald* says:

"A review of the deliberations of the Davao Planters' Association indicates that there is a desire to standardize the hemp of the Moro Province so that it will have a fixed rating on the markets. It will probably be brought about by having a government inspector and graders, the government to do the baling and place an official stamp upon each bale.

"All producers of good hemp have suffered financial loss by the trickery of unreliable balers and classifiers. Some of the cordage companies in the United States, it is reported, have suffered great loss by having found the interior of bales loaded with bad hemp and even stones. It is probable that some strong financial firm will advance money to the planters on warehouse receipts of graded hemp bearing the government stamp. Thus the planter can be tided along by these advances, and if the market seems to justify hemp could be held for advance in prices.

"The present output of the Davao Association, which includes only the American and some of the Spanish planters, is stated to be 1000 piculs per month. Within a few months and with improved labor conditions this output will have doubled. Probably by the time the new system can be installed the output will be sufficient to keep a press running constantly. There would thus accrue to the planter a great saving in freight, storage, cost of handling, and the profits of various middlemen."

This would be another long step in the right direction. It would make it a very simple matter to interest capital to finance these pioneers in their heroic efforts to win the jungle and develop the fertile areas to a high state of production.

Referring to the character of the men who are taking the brunt of this pioneer work the *Herald* says:

"We note that the aggregation of Davao planters is drawn from all walks of life. Men are there represented who have taken their part in winning the West as agriculturalists, prospectors and miners. There are among them those who have tamed the bucking broncho and have lived the life where it stood them in hand to be quick on the trigger. Some have stood at the throttle of the panting locomotive and some have earned the title of 'sky pilot.' The fields of law, medicine and journalism are represented, and a majority have been soldiers. They are in Davao, not because they could not succeed at home, but because they are pioneers and Davao furnishes the remotest thing in the pioneer line. They are all the better fitted for taking their respective places in this empire building by reason of the peculiar and varied qualifications which they possess."

Throughout the islands, among every nationality, there is an increasing interest in Mindanao as a result of the conference. And we are assured that if the plans of the Davao planters are carried out, and we feel that they will do their share, the banking institutions of the islands should not hesitate to give reasonable accommodation on warehouse receipts representing value in standardized hemp stamped by the Philippine Government. In this solution seems the salvation of the island empire colonies struggling against fearful odds to overcome the seemingly impossible.

PRESIDENT TAFT AND THE PAYNE BILL

As predicted in the REVIEW last month, the conference of the two houses on the Payne Bill was the opportunity for which President Taft was waiting to become active in using his personal influence in shaping the revision to a more downward tendency, and molding it into such form as to fulfill the pledge of the administration. He even went so far as to announce that unless it fulfilled the party's promise, he would not hesitate to use his veto power.

Up to this time, Mr. Taft refrained from any attempt to meddle with the legislators, and in some quarters it was thought that he would accept, regardless of campaign pledges, the final conclusions of Congress. Up to the time of the conference, many were led to believe in his acquiescence. And great was the surprise occasioned by his marked activity at this juncture. He forced the conference to readjust the cut in the number of Philippine cigars and amount of sugar to be admitted free. This Philippine section of the bill was his favorite and he saw that it was preserved in its original form. Then he went after the revision of the upward tendency and with good results.

Even at present writing, there is no reason to believe that Taft will be swerved from his purpose to make the revision a complete and unequivocal fulfilment of administration pledges. If conference does not accomplish what is expected of it there are few who doubt that President Taft would promptly use the veto even at the sacrifice of more reciprocal trade relations with the Philippines.

BRITISH NORTH BORNEO ENTERPRISE

The Government of British North Borneo is offering every encouragement to enterprises to become interested in the development of the unlimited resources of the country. The latest and most favorable terms, offered to pioneer companies, refer to a large tract of fertile land about three miles back of Jesselton, a port in direct communication with Singapore and Hongkong. According to the *Herald* these terms are as follows:

(*a.*) Land up to 3,000 acres will be given free of charge for 5 years.

(*b.*) After 5 years a quit rent of 10 cents per acre per annum will be charged.

(*c.*) Bona fide cultivation must be commenced within three months of selection, and systematically carried on.

This indicates that the British North Borneo Government recognizes the value of the pioneer agriculturalist and that the value set on uncultivated land should not stand in the way of its earliest development. The valley referred to is suitable for sugar and this offer is made to encourage the industry with a view to greater expansion. Besides this one feature, the government has always been liberal in the encouragement of prospectors, a reward of £5,000 being offered for the discovery of paying deposits. Then there is the lumbering industry where every inducement is given to prospective enterprise.

This liberal policy will soon bring its own reward. Interest in North Borneo is growing, and a continuation of the present attitude of the government cannot fail to secure the recognition it deserves. It is good promotion work.

THE NEW MANILA HOTEL

The site for the new hotel on the Luneta Extension at Manila has been secured. The plans are complete for a hotel of 150 rooms, and the sum of ₱900,000 practically is available to construct and furnish it, leaving a balance for working expenses. The Manila Hotel Company was organized with a capital of 300,000 pesos and the Government of the Philippine Islands has agreed to purchase at par ₱600,000 of bonds issued by the company at the rate or four per cent. All this money will be invested in the hotel. The stock has been underwritten and lists close August 15. The site chosen is an ideal one, and when the extension is parked there will be no more attractive spot in the city. Work of construction will commence at an early date. The directors of the company are: Messrs. M. F. Loewenstein, of Castle Bros., Wolf & Sons,; H. T. Fox, of Smith, Bell & Co.; Francisco Ortigas, of Ortigas & Fisher; Walter E. Olsen, of W. E. Olsen & Co.; Carlos de las Heras, of the "Tabacalera;" Mauro Prieto, of the "Germinal;" Otto Ranft, of Germann & Co.; P. G. Eastwick, of the International Banking Corporation, and Edward B. Bruce, of Bruce & Lawrence. Mr. Loewenstein is President of the Company and Mr. Eastwick Treasurer.

THE CATHERINE THE GREAT OF CHINA

(Courtesy of Denniston & Sullivan.)

TSU-HSI-TUAN-YU-K'ANG-YI-CHAO-YU-CHUANG-CH'ENG-SHOU-KUNG-CH'ING-HSIEN-CH'UNG-HSI

HER MAJESTY, THE LATE EMPRESS DOWAGER OF CHINA

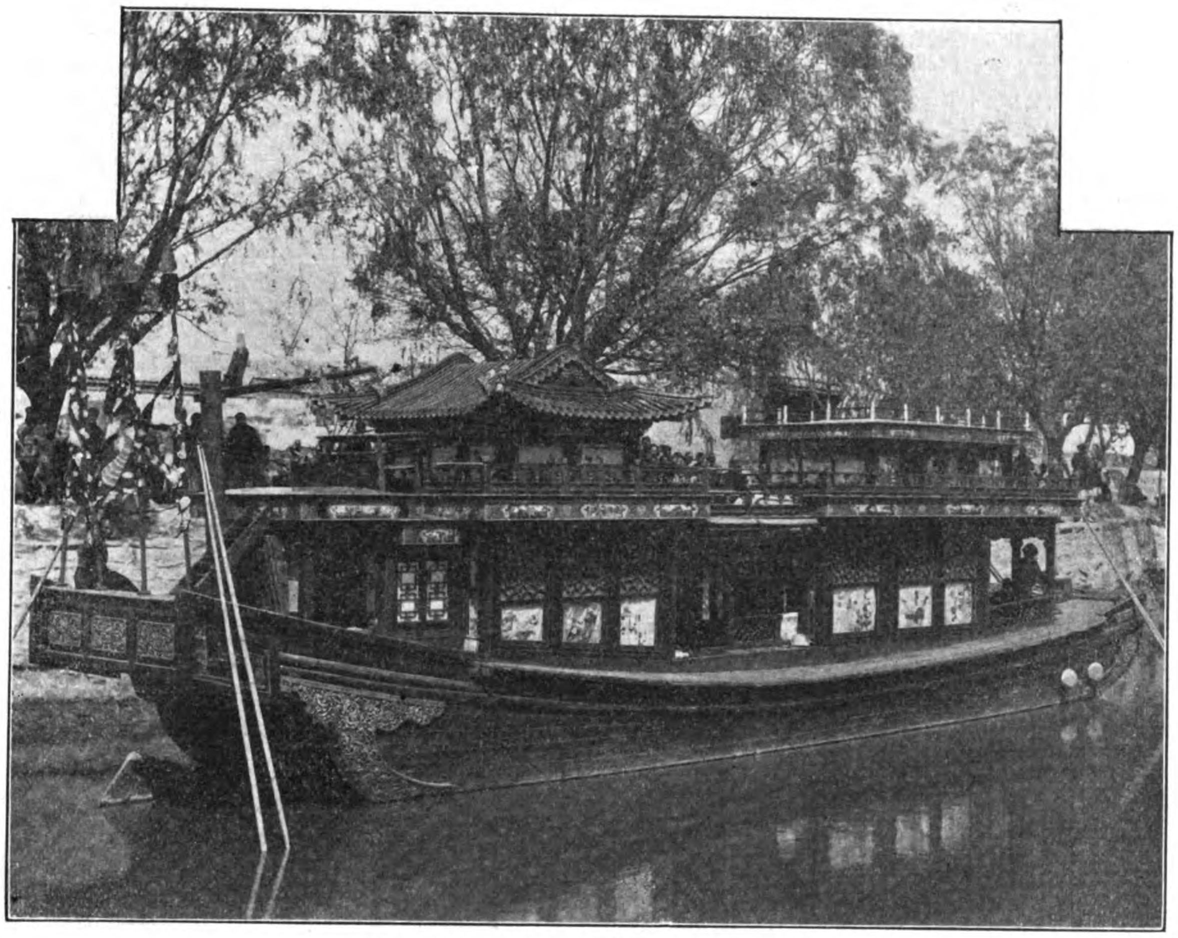
One of the most remarkable women in history and for 46 years the virtual ruler of 400,000,000 people. The inscription over her gives her title and the expression for longevity:—

"10,000 years, 10,000 years, 10,000-10,000 years."

HER MAJESTY, THE LATE EMPRESS DOWAGER OF CHINA,

IN VARIOUS COURT COSTUMES

(From original photographs)



THE EMPRESS DOWAGER'S PLEASURE BOAT

THE RULERS OF CHINA

(Continued from page 55.)

if the events of the past six months are any criterion, the outlook for his success is very bright.

As the result of foreign travel and liberal education, the Regent may be classed as a Progressive. As Prince he displayed great interest in all matters tending to benefit the Empire, and this trait has so far largely controlled his actions as Regent. On the other hand, the traditions of race and family, and the influences of his advisers, are conservative and reactionary.

The first glimpse the world received of the character of the young Prince was when he visited Berlin after the Boxer troubles as the Imperial Envoy to make amends for the murder of Baron Kettler. He fulfilled the mission in a manly, dignified manner and elicited universal admiration by refusing to degrade himself by performing the "Kowtow" before the German Emperor.

This tour of foreign countries in 1900 gave him the opportunity to study and observe Western customs, ideas, and progress, and on his return to Peking he urged the adoption of many innovations for the capital. It is said that he greatly embarrassed the late Empress Dowager by pertinent questions as to why the streets of Peking were not paved, why a water system was not installed, and why other equally revolutionary improvements were not adopted in the capital. It is also stated on high authority that his personal descriptions and reports to Her Majesty exercised great weight in turning her ideas and bringing around the many improvements which have since been made in Peking. During the interval between his return from Germany and his selection as Regent, Prince Ch'un was preparing for his present high office by deep and zealous application to study. For several years he daily attended the Nobles' School at Peking, giving

TWO MANCHU GIRLS, DAUGHTERS OF A HIGH OFFICIAL AT PEKING

THE LATE EMPRESS DOWAGER AND HER FAVORITE ATTENDANTS

THE EMPRESS DOWAGER IN THE CENTER WEARING THE FAMOUS PEARL CAPE

From right to left: HER IMPERIAL MAJESTY, THE EMPRESS LUNG-YU, THE CONSORT OF KUANG-HSU AND PRESENT EMPRESS DOWAGER, (this is the best picture of Her Majesty yet taken); LADY YU-KENG, THE WIFE OF THE LATE CHINESE MINISTER TO FRANCE, AND HER TWO DAUGHTERS, THE LADIES YU, FIRST AND SECOND COURT LADIES TO THE DOWAGER. ON THE LEFT IS HER HIGHNESS, JEN FEH, THE SECOND WIFE OF THE LATE EMPEROR KUANG-HSU

THE LATE EMPRESS DOWAGER AND COURT LADIES

THE EMPRESS DOWAGER IN THE CENTER. ON HER RIGHT HAND THE EMPRESS LUNG-YU, CONSORT OF KUANG HSU, AND HIS SECOND WIFE HER HIGHNESS, JEN FEH. ON THE EMPRESS'S LEFT IS THE LADY SIGURGA, THE FOURTH DAUGHTER OF THE PRINCE OF CH'ING. IN THE RIGHT FOREGROUND STANDS THE CHIEF EUNUCH, LI LIEN-YING. OPPOSITE HIM IS THE SECOND EUNUCH, TS'UI YU-KUEI. OTHER EUNUCHS COMPLETE THE GROUP

TWO ORIGINAL PICTURES OF THE LATE EMPRESS DOWAGER

From Miss Katharine Carl, an American lady who, in 1903, was commissioned to paint a portrait of the Dowager-Empress to be sent to the St. Louis Exhibition, the world has learned something of her personality.

"A perfectly proportioned figure, with head well set upon her shoulders, and a fine presence; really beautiful hands, daintily small and high-bred in shape; a symmetrical, well-formed head, with a good development above the rather large ears; jet-black hair, smoothly parted over a fine, broad brow; delicate, well-arched eyebrows; brilliant black eyes, set perfectly straight in the head; a high nose of the type the Chinese call "noble," broad between the eyes and on a line with the forehead; an upper lip of great firmness; a rather large but beautiful mouth, with mobile red lips, which, when parted over her firm, white teeth, gave her smile a rare charm; a strong chin, but not of exaggerated firmness, and with no marks of obstinacy. Had I not known she was nearing her 69th year, I should have thought her a well-preserved woman of 40. Being a widow, she used no cosmetics. Her face had the natural glow of health, and one could see that exquisite care and attention were bestowed upon everything concerning her toilet. Personal neatness and an excellent taste in the choice of becoming colours and ornaments enhanced this wonderfully youthful appearance, and a look of keen interest in her surroundings and remarkable intelligence crowned all these physical qualities and made an unusually attractive personality."

THE LATE EMPRESS DOWAGER AND LADIES OF HER COURT

BIRD'S EYE VIEW OF THE FORBIDDEN CITY. FROM COAL HILL, LOOKING SOUTH

THE SELECTION OF THE EMPEROR.

In view of the many stories published purporting to give the real facts surrounding the selection of Pu-yi as Emperor and his father as Regent, it is quite clear that this choice was decided on long ago by the Empress Dowager. His careful training and appointment to the Grand Council leads veracity to the report published in THE FAR EASTERN REVIEW in December last, which stated that the Empress Dowager had promised Viceroy Jung-lu, on the marriage of his daughter to Prince Ch'un in 1902, that, if a son was born to them, he would be selected to succeed Kuang-Hsu. Jung-lu as Viceroy of Chihli had been the firm partisan of the Dowager. In the reform movement of 1898, the Emperor listened to his advisers and ordered Yuan-Shih-Kai to proceed to Tientsin, execute the Viceroy, and return at once with his army to Peking. Instead of carrying out his orders, he gave Viceroy Jung-lu three days' grace, which was sufficient time for him to proceed to Peking, apprise the Empress Dowager of the plot, and bring about the now celebrated *coup d'état* of 1898. Kuang-Hsu was imprisoned in his palace, deprived of power, and the reins of government seized by the Empress Dowager. Nothing is more natural than the Empress would bestow some high mark of appreciation on the Viceroy whose quick action again placed her in supreme control, and after the marriage of Prince Ch'un to his daughter, and the birth of a son, the elevation of Ch'un to the Grand Council—the only young prince thus honored—is sufficient proof that the Dowager was faithfully carrying out her promise, and educating her choice for the Regency, although for reasons of State the official announcement of the election was not published to the world until the day of the Imperial deaths.

Lady Yu-Keng, a former lady-in-waiting to the Dowager, in a letter to the *Washington Star*, tells the following story of the selection:

"The child Pu Yi was selected by their majesties the day before they died, and Prince Ch'un was designated by them to be the regent in an edict that appeared on the day before the Emperor died. Yuan Shih Kai, being a Chinese, could not under any circumstances, no matter how influential he might be, have anything to

SECOND THRONE HALL, IMPERIAL PALACES, PEKING

THE RULERS OF CHINA

(Continued from page 60.)

special consideration to the study of higher mathematics, political science, and military matters.

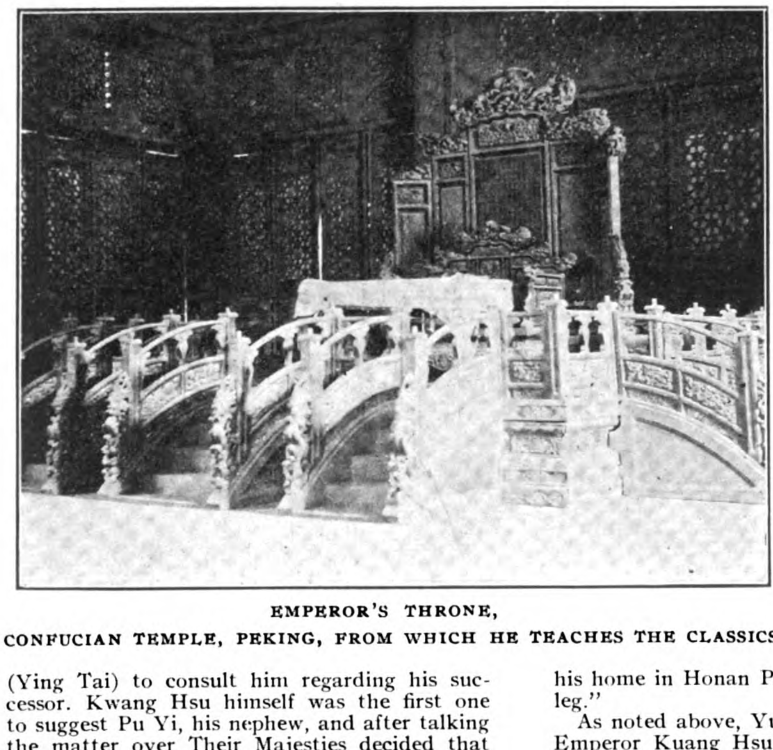
Punctuality and modesty characterized his attendance at this School, and to attain the former he frequently purchased his early breakfast from the street hawkers of Peking. At the same time he was also being initiated into the affairs of State. His first official appointment in 1901, before his departure for Germany, was the command of the Plain White Manchu Banner Corps with rank of Lieutenant General. Near the close of his studies he was appointed at one jump as a supernumerary Grand Councillor, the highest official body of the Empire, which brought him into close touch with the great statesmen of the day. These important duties, which were to prepare him for his future office, prevented his continued attendance at the School, but the lessons were sent to the Palace for him to take up after official hours. In February of 1908 he was made a full Grand Councillor, an honor only conferred on old and tried officials, thus placing him on equal footing and rank with the most experienced wise men of the Empire. The appointment of the young Prince of Ch'un to the Grand Council was a step filled with import and significance, and foreshadowed his selection as the next ruler. In the Cabinet, composed of such old greybeards as the Prince of Ching, Shih-Hsu, Chang Chih-tung, and Lu Chuan-lin, with the younger and more progressive Yuan Shih-kai, the Prince of Ch'un soon became conversant with all the leading political questions of the day, and had a share in the deliberations and decrees of this august body. He was shortly afterwards appointed a member of the Government Council, a body also composed of the highest and oldest officials of the Empire, and then appointed a member of the Commission of Constitutional Reform.

So for a long time previous to the death of the Emperor and Empress Dowager, Prince Chun had an intimate knowledge of affairs of State, participated in the sessions of the Grand Council, and was in full touch with the deliberately considered policy of the Government. His foreign experience and study, imbued him with genuine progressive tendencies, and a firm belief in the benefits of a constitutional form of Government for his country, and a desire to organize and expand military, naval, and commercial affairs. It was in this manner that the late Empress carefully educated her choice for the Regency, so that the reins of government would fall into strong hands. The one great requisite for the occupant of the Throne, during the Regency, is a firm character to successfully enforce his will and ideas of reform against the certain opposition of the many old hard shell reactionaries filling the highest offices of the Empire. Judging from such reports as filter through the outside world, the Prince of Ch'un has stood the test, and it is becoming more and more evident that his will is law and must be obeyed.

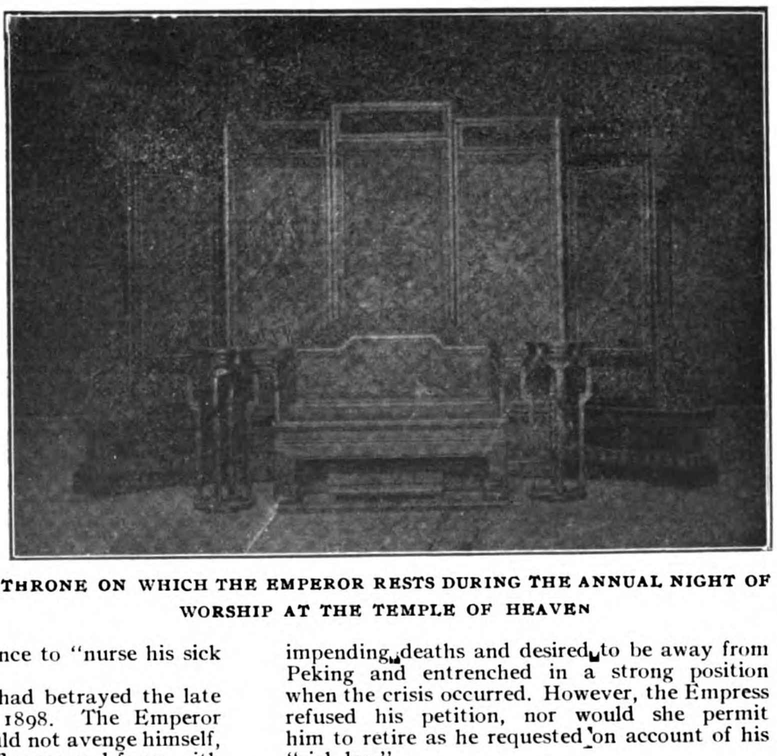
THE LATE EMPRESS DOWAGER OF CHINA POSING AS THE GODDESS OF MERCY, WITH A DAUGHTER OF PRINCE CHING AND PRINCESS YUAN AS ATTENDANTS AND CHIEF EUNUCH LI LIANG YING IN THE FOREGROUND PLAYING THE "FLUTE"

do with the selection of a successor to the throne. Even Prince Ching, who had a great deal more influence with Her late Majesty than ever Yuan did, had nothing to do with this selection.

"On the 19th day of the eleventh moon, while the Emperor was still living, the Empress Dowager went to see him at his own palace (Ying Tai) to consult him regarding his successor. Kwang Hsu himself was the first one to suggest Pu Yi, his nephew, and after talking the matter over Their Majesties decided that Pu Yi should succeed, and as he was only four years old, his father, Prince Ch'un, should be appointed Regent, to rule until Pu Yi reached the age of eighteen years."



EMPEROR'S THRONE, CONFUCIAN TEMPLE, PEKING, FROM WHICH HE TEACHES THE CLASSICS



THRONE ON WHICH THE EMPEROR RESTS DURING THE ANNUAL NIGHT OF WORSHIP AT THE TEMPLE OF HEAVEN

DISMISSAL OF YUAN SHIH-KAI

The first great act of the Prince Regent was the summary dismissal of Yuan Shih Kai, the ablest statesman and most progressive official of the Empire. By a stroke of the vermilion pencil he was deprived of all his honors, dismissed from his high offices, and banished to his home in Honan Province to "nurse his sick leg."

As noted above, Yuan had betrayed the late Emperor Kuang Hsu in 1898. The Emperor never forgave him, but could not avenge himself, owing to Yuan's strong influence and favor with the Empress Dowager. Many of Kuang Hsu's lonely hours were passed in writing denunciations of Yuan Shih-Kai, and after his death several chests full of such papers were found in his rooms by the Regent. One long special indictment against Yuan, directed to the Regent, concluded with the sentence, "Let Yuan be at once beheaded." Kuang Hsu, in the few opportunities he had for conversation with his friends, invariably brought up the subject of Yuan Shih-Kai's treachery and his thirst for vengeance. So it was natural that on Prince Ch'un's elevation to power he would remove his brother's arch enemy. But not an inkling of his intentions leaked out to the world. To all appearances, Yuan was still all powerful and in favor, and an indispensable official to the Empire.

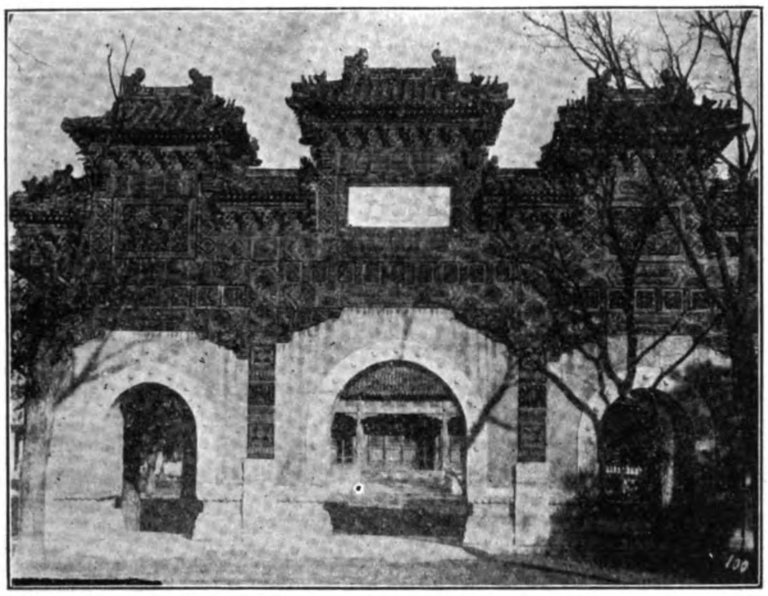
But on the expiration of the period of official mourning the Grand Council met as usual, and the Regent presented an edict for the pardon of the reformer Kang Yu-Wei, the friend of Kuang Hsu, now a refugee in foreign countries. Yuan refused to sign it, and used rather strong language. A scene was averted then by the tact of old Prince Ching who invented a sudden indisposition which adjourned the meeting. Before the next day's meeting the Regent called a special session of the Council, and handed them an edict, dismissing Yuan and ordering them to sign it. It is stated that one of the Council attempted to argue the matter with the Regent, but was peremptorily ordered to close his mouth and sign the paper. The paper was signed.

The next morning when Yuan appeared at the Council Room, he found the doors barred to his entrance, and before he could master his surprise and indignation, his dismissal, concealed in solicitous verbiage for his poor health, was handed him. Yuan fell back in a faint, fearing that the edict of dismissal was only preliminary to his death warrant.

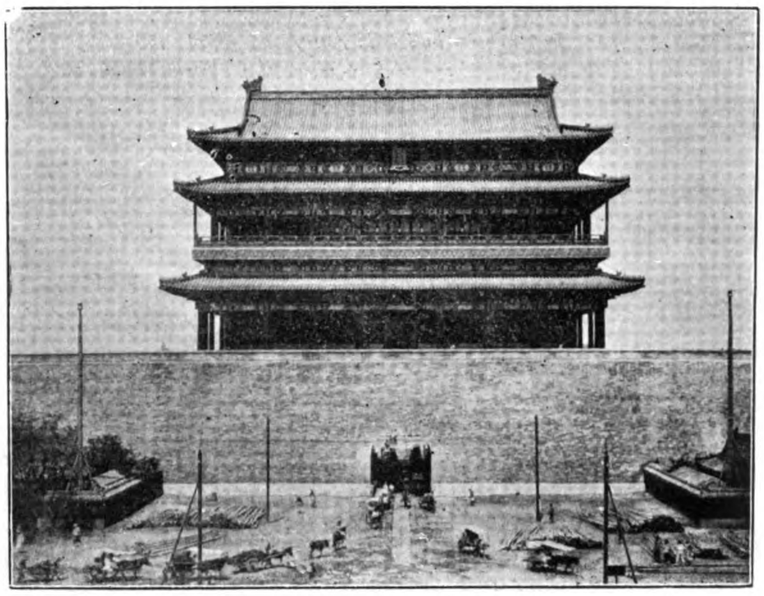
YUAN'S FLIGHT TO TIENTSIN

It is quite evident that Yuan lost control of himself and fully expected to be executed, and his subsequent actions justify the belief that he contemplated some move to protect himself or save his life by flight. For sometime previous to the deaths at Peking, Yuan had endeavored to be relieved of all his high posts and ordered back to his former office as Viceroy of Chihli. Here he would command the modern-drilled army, previously organized and trained to high state of efficiency under his direction. Yuan evidently had a premonition of the impending deaths and desired to be away from Peking and entrenched in a strong position when the crisis occurred. However, the Empress refused his petition, nor would she permit him to retire as he requested on account of his "sick leg."

The Viceroy of Chihli, Yang Shih Hsiang, was a creature of Yuan's, and owed his post to Yuan's



PORCELAIN GATEWAY, CONFUCIAN TEMPLE, PEKING



SOUTHGATE TOWER, PEKING

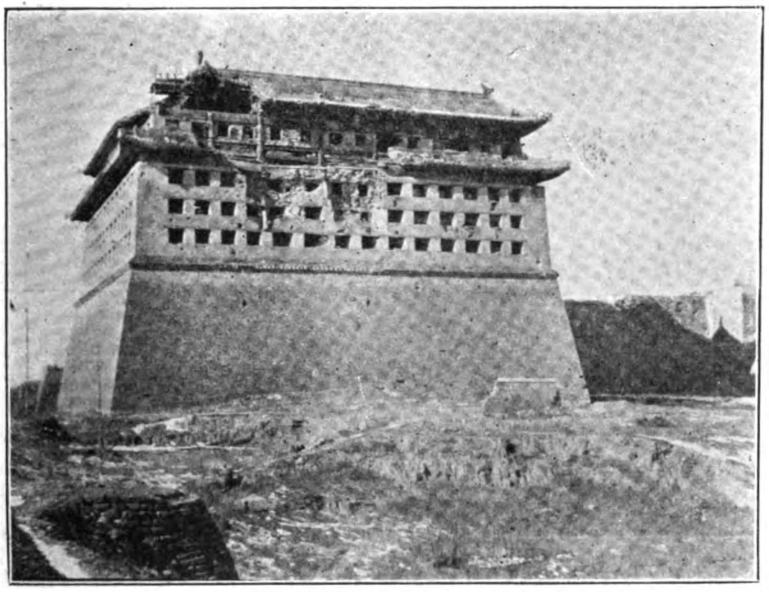
favor. When Yuan recovered his senses, he fled from the capital direct to Tientsin, travelling in the ordinary first class coach of the Railway. On arrival, he sent a message to his protégé, the Viceroy, that he was coming to see him.

It is said that, fearing death, Yuan's intention was to enlist the co-operation of his favorite, and place himself at the head of his troops and defy the Regent. Whatever hopes Yuan cherished in this direction were quickly crushed by a message from Viceroy Yang refusing to receive him at his yamen. As the Viceroy went, so followed all the leading Tientsin officials, and to escape possible arrest, Yuan hastily entered the British settlement and secretly passed the night in the Astor House.

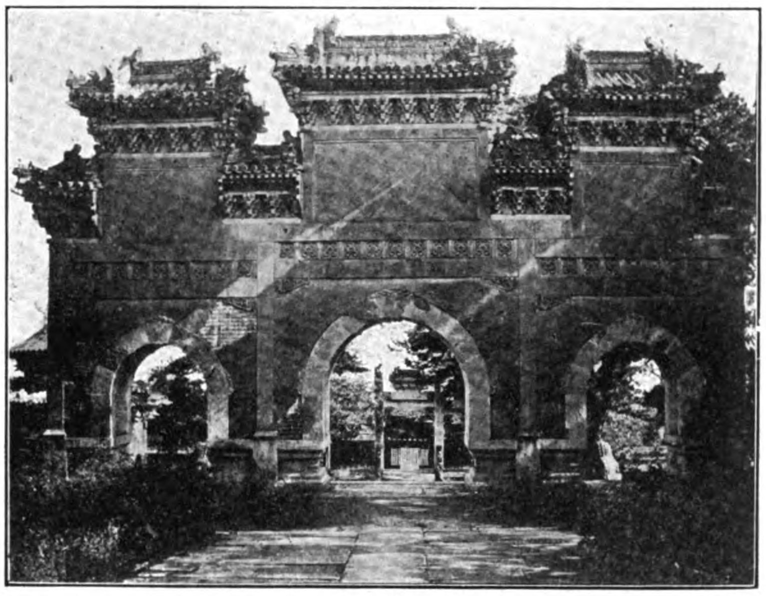
And so the Prince of Ch'un at once demonstrated his strength of character, firmness of will, and also his ideas of clemency and mercy. The world at first disapproved, but once the real reasons for Yuan's dismissal were made public, the summary action of the Regent and the undoubted clemency shown in sparing Yuan's life has won for him general respect and admiration.

THE DISMISSAL OF SHENG-YUN.

A more recent example of his character and fixity of purpose in his policy is revealed in the prompt dismissal from office of Sheng Yun, the Viceroy of the Shen-Kan provinces. Several edicts have been issued from the Throne, commanding the Viceroys and Governors to create provincial assemblies and in other ways prepare for the constitution to be granted in seven years, and nearly all the provincial rulers have initiated certain movements along these lines. Of course the idea of a constitution is repugnant to many of the old conservative officials. While pretending to co-operate, the reform movement is used as a cloak to create new sinecures for favorites and little real progress is made towards preparing the people for the exercise of their rights. But the wily, tactful old officials are careful, however, not to openly antagonize the new movement. All except Sheng Yun, the Viceroy of Shensi, and Kansu. Sometime ago he memorialized the Throne that the constitution could not be applied to his wild border province of Kansu, where the inhabitants were far behind the rest of China in learning and civilization. The Regent gently reprimanded him on these views. The Viceroy, notwithstanding this concealed hint, insisted that as far as Kansu province was concerned he was justified in his attitude and requested the privilege of coming to Peking and verbally explaining the situation. The Regent telegraphed back that he could submit his report either in writing or by telegraph, but he could not leave his post. So Sheng Yun vented his opinions about the constitution rather freely by telegraph, and at the same time expressed a strong desire to retire. He also suddenly developed all manner of alarming physical ailments which necessitated a complete rest from the strenuous life of a Viceroy.



S. E. CORNER, TARTAR CITY WALL, PEKING
Showing Effects of Shell Fire in 1900



A PEKING GATEWAY

Knowing that Yuan was courageous and resourceful and would cause trouble if his life was in danger, his sudden departure from Peking alarmed the government. It is reported that a message was hurriedly dispatched to Yuan, informing him that his person was in no danger, and guaranteeing him safe escort if he would return to Peking and retire quietly to his home in Honan. Whatever ulterior designs the Regent held as to Yuan's further punishment must remain a secret, and the world can only judge his action by sense of the Edict permitting him to retire on account of ill health. Yuan's betrayal of his friend and patron, the Emperor, in 1898, was returned in fully by his protégés in Tientsin, when he fled to them for protection and assistance after his downfall.

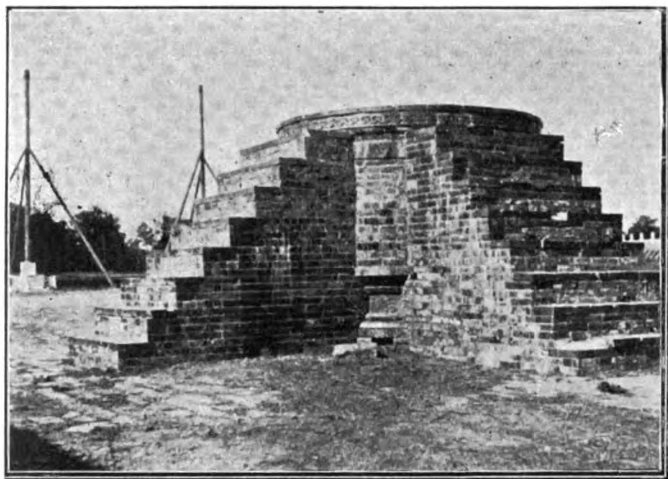
The answer of the Regent was quick and to the point. The edict permitting the Viceroy to retire is as much a summary dismissal as was the one handed to Yuan Shih Kai, and again the Regent is seen in the role of a merciful ruler.

IMPERIAL EDICT.

Peking, 23rd June.—"The preparation for constitutional government is carried out in accordance with the Imperial Decrees of the late Empress, and upon Our succession to the Throne We also decreed to all the officials in Peking and provinces to obey Our desires to accomplish the reforms started by the late

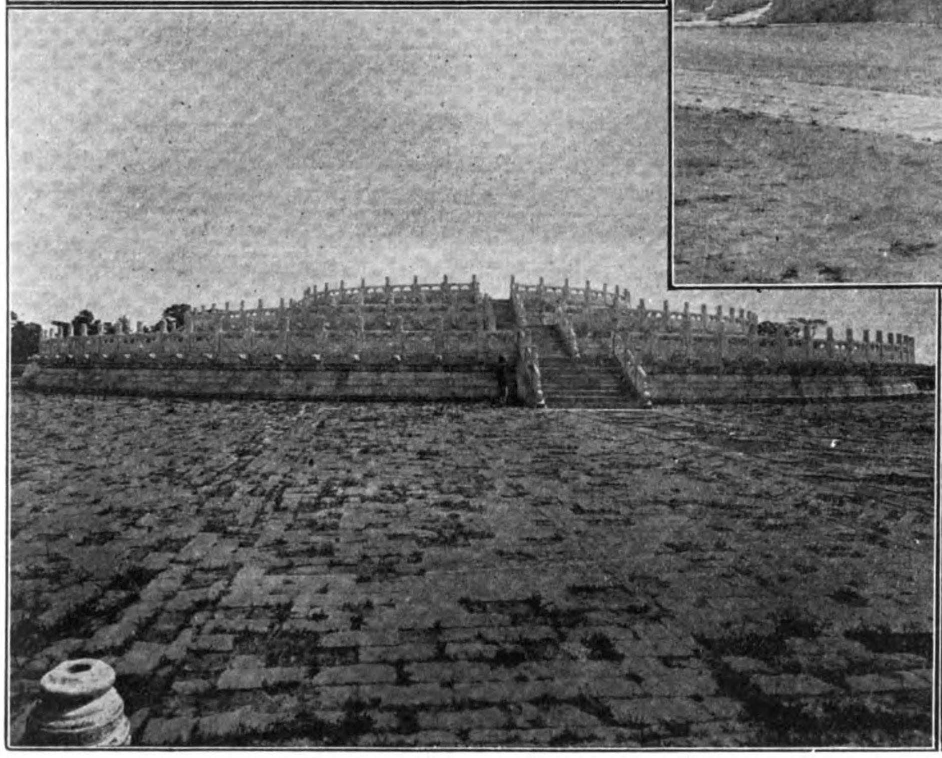
THE GREAT FURNACE,

Temple of Heaven, Peking, in which is consumed yearly the burnt offering of a bullock "whole and without blemish."



HALL OF FASTING,

Temple of Heaven, Peking, in which the Emperor rests during the night of worship.



THE GREAT ALTAR TO HEAVEN ON WHICH THE EMPEROR WORSHIPS.

The base is 210 feet, middle terrace 150 feet, and top 90 feet in diameter, built wholly of white marble. (Temple of Heaven.)

MAIN PATH,

Temple of Heaven.

Emperor. Sheng Yun, the Viceroy of Shen-Kan, has asked us to allow him to come up to Peking to state his views verbally and then We ordered him by wire to present a memorial, by telegraph if desired, as We are quite willing to hear the views of officials on various subjects. Now We have received his memorial in which he expresses his views on the constitution and his desire to retire from his post. We notice in the memorial and by his conduct that he wants to show his prejudiced obstinacy which We deem much to be deplored. We consider that he should be dealt with severely as a punishment for his conduct. However, considering his past merit, having served in remote provinces for many years, We simply grant him leave to retire as he requires."

To the outsider the stand taken by Sheng Yun in regard to the application of a constitution to the unlettered savage and wild tribes of the Kansu border, is undoubtedly a correct one, but the fiat has gone forth that the constitution will be granted, and it behooves all officials to fall in line and lend their assistance to the scheme, or they will also lose their official heads under the axe of Ch'un.

APPOINTMENT OF THE REACTIONARY HSI-LIANG

One of his official acts, which gives rise to a suspicion that he is not completely free from the influences of the old reactionary party, was the recall of Viceroy Hsu Shih-Chang from Manchuria, and his promotion to the Presidency of the Railway Board, and filling the vacancy at Mukden by the transfer of Viceroy Hsi Liang from Yunnan. Viceroy Hsu had surrounded himself with the most brilliant and clever foreign educated officials of the Empire, and made considerable progress in developing the provinces. But under his régime, many important questions arose with Russia and Japan, which lagged along without any solution being arrived at by either side. There is little doubt that Manchuria, under Viceroy Hsu and his foreign educated officials, was the best administered viceroyalty of the Empire, and it is difficult at present to fathom the real reasons underlying the change of officials. The new Viceroy, Hsi Liang, is a Mongol and a pronounced reactionary of the old school. It is also claimed that he has been under Russian influence for years. He refuses to ride in a coach, preferring the sedanchair, criticizes the waste of money in erecting the fine, commodious modern Government Houses at Mukden, and is pulling to pieces the work of three years of the most enlightened provincial rulers of China. With his arrival, the many foreign educated officials have been either transferred or placed on waiting orders, and their places filled by reactionary favorites of the Viceroy, or left vacant under the plea of economy.

This shuffle of the cards reveals a purpose on the part of China to pursue another line of policy in dealing with Manchurian affairs, and while it is possible the Regent may be justified in transferring those officials who have created some of the friction with Japan, and leaving the solution of pending issues to an entirely different set of officials, on the other hand the act is open to criticism, as the reforms initiated by the more progressive administration of Viceroy Hsu will be retarded by the reactionary tactics of Viceroy Hsi.

A HARD WORKER

The Regent has shown himself in many ways to be a man of action and a hard worker It

HIS IMPERIAL HIGHNESS, TSAI-YING,
SECOND SON OF THE CELEBRATED PRINCE OF KUNG, AND HIS YOUNGEST SON H. I. H. PRINCE P'U-JU.
THE FIRST SON OF TSAI-YING, BY NAME P'U-WEI, WAS ADOPTED BY HIS UNCLE AND INHERITS THE TITLE OF THE PRINCE OF KUNG

is reported that he goes to the Palace every morning about 3 o'clock. He first spends an hour or so in perusing the various memorials and then awaits the order to go into the Presence-Chamber where he discusses the Imperial Edicts to be issued that day with the Grand Councillors. After this is done, he sees the Empress Dowager if there is any important matter which demands her indorsement. It is generally between 10 and 11 a. m. before he can retire to his private rooms where he reads the memorials and sometimes holds a Conference with Prince Ching and the other Grand Councillors. The day's work is over about noon when His Imperial Highness goes home to his palace.

The Regent appears to be a man thoroughly conversant with what is going on around him, and one of his first acts was to issue an order that anyone could present a petition or memorial to him direct. His servants were instructed that free access be granted all persons coming to deliver a letter or petition, and at the same time they were prohibited from causing the arrest of any one on their own responsibility, and warned against applying to him for posts for any of their friends. It is also reported that the Regent has placed a regular petition box in the palace, with a special deputy in charge. All representations concerning government matters are duly passed and presented to His Highness for perusal, but papers on private business or attacks on officials are unnoticed. The Regent has also cultivated the habit of a modern Haroun al Raschid, attiring himself in plain clothes and reconnoitering Peking to see for himself how his people are faring. Sometimes from the depths of a Peking cart, again from the more humble ricksha, and at times on foot, it is reported that the Regent flits about the city gathering his own ideas, and listening to the political gossip and comments of the shops.

NEW ORDER OF THINGS IN THE PALACE

So, when he has occasion to speak his mind, he does so in no uncertain manner. One of his first edicts, issued in January, came as a hot shot into the camp of the reactionary officials who thought they were pulling the wool over the eyes of the young ruler. His message quickly recalled them to their senses. "No one in the Government is really carrying out reforms, but they are merely using reforms as a pretext for appointing partisans to desirable offices." This remark sheds a flood of light on the character of the Regent who is evidently fully informed as to what is transpiring throughout the Empire and is equally determined to carry out his ideas in the face of opposition. Reforms must take place slowly in China, but a start has to be made and the machinery set in motion. The machinery is moving now, and ponderously the wheels were beginning to revolve. With the Prince of Ch'un at the lever, it is hoped that there will be no shutting off the steam

The Regent holds no illusions concerning the character of his imperial associates and palace entourage The squabbles and fights of his Imperial cousins and the Manchus of the Court find little encouragement in his eyes. Palace intrigues, which were rife during the old régime, have been squashed with a strong hand. The majority of the Princes, Nobles, and high Manchu officials are devoid of proper training for taking part in the government and while away their hours in idleness and pleasure, and creating discord within the palace. The Regent has put his foot down on all this nonsense, and commanded the younger nobles to go to School. Prince Yu-Lang has been entrusted with the building of a new Nobles' College, and the pleasure loving Manchu aristocrats must soon go to school and learn things. The influence of the Eunuchs under the late Empress Dowager at times surpassed the power of the high officials of the Government, and it is reported that the head eunuch of Her Majesty grew so arrogant as to slap the face of a high police officer. The question of abolishing the eunuch system altogether has been discussed and met with the Regent's approval, but as it is a matter largely affecting the present Empress Dowager he has courteously left it to her to decide, without pressure from him. He has, however, according to native reports, personally requested the

H. I. H. PRINCE P'U-JU,
BROTHER OF THE PRINCE OF KUNG AND COUSIN TO THE EMPEROR

Empress to instruct the head eunuch to prohibit the others of his class from freely entering the palaces in which they have no business and confine themselves to their own precints. Several officious eunuchs have been arrested and punished for interfering with state affairs, and Palace intrigues are being put down by rigorous means.

the others seemed to lend themselves as instruments to impeach high officials for purely personal spite.

The most influential Ministers of State, Grand Secretaries, Grand Councillors, Viceroys, Governors, and others were denounced for startling crimes and misappropriations. Grand Secretaries Na Tung, Chang Chih-tung, Sun

instructed along the old lines it will be of little practical value. The Empress Dowager is also taking great interest in her little nephew's education. It is reported that His Majesty is a bright and apt little scholar, and has already mastered many of the ideographs of the language. The Regent has also appointed His Excellency Chang Te-yi, the Ex-Minister to

THE PRINCES WHO LOST THE THRONE

His Imperial Highness, Prince P'U-CHUN

SON OF TSAI-YI (PRINCE TUAN), THE BOXER PRINCE; ADOPTED AS POSTHUMOUS HEIR TO EMPEROR TUNGCHIN IN JAN. 1900, AND HEIR APPARENT TO EMPEROR KUANG-HSU; DISINHERITED IN NOV., 1901, OWING TO PRESSURE OF FOREIGN POWERS

His Imperial Highness, Prince PU-LUN

THE FIRST IN LINE OF THE SUCCESSION; ELDEST SON OF PRINCE TSAI-CHIH WHO WAS HEIR TO YI-WEI, FIRST SON OF EMPEROR TAO-KUANG. ONE OF THE BRAINY AND ABLE PRINCES OF THE IMPERIAL CLAN. VISITED AMERICA AS IMPERIAL COMMISSIONER TO THE ST. LOUIS EXPOSITION

FRENZIED IMPEACHMENTS.

Many charges and countercharges of corruption and maladministration of officials in power were circulating in Peking at the beginning of the new reign. The Censorate whose duty was to expose these matters to the Throne, had for various reasons been timorous in attacking officials high in favor, but the Regent reassured and encouraged them to discharge their duty without fear or favor. As a result denunciations and impeachments followed in rapid succession. Hardly an official escaped. For a while it looked as though every high dignitary of the government would be implicated in some alleged fraud or charged with incapacity, and there would be no honest officials left to investigate and try the indictments. While the opportunity was availed of by honest censors to make suggestions on government affairs or denounce really worthless or corrupt officials,

Chia-nai, Presidents Chen-pi, Yang Shih-Chi-Viceroys Hsu Shih-Chang and Yang Shih, Hsiang, Governors of Honan, Shantung, Anhui, and Chekiang, and Yuan Shih-kai were all charged with grave crimes against the country.

It is needless to go into these accusations as all the officials are still in power, with the exception of Chen-pi, the President of the Board of Communications. His case was flagrant, and in addition he incurred the hostility of British interests, so he had to go.

EDUCATION OF THE EMPEROR.

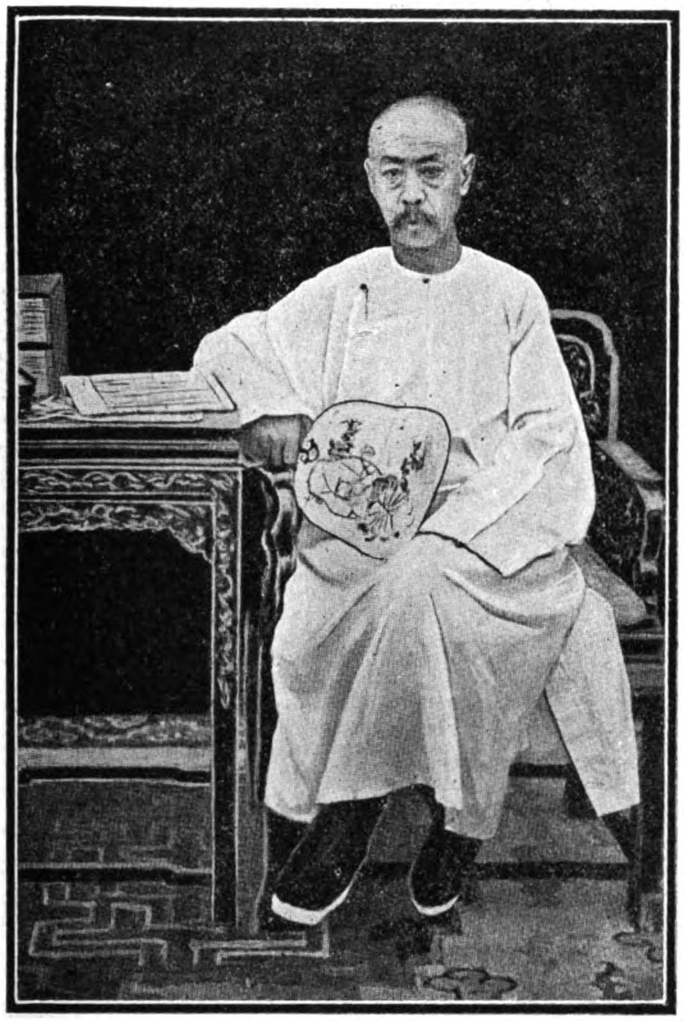
In the education of the young Emperor, the Regent shows much solicitude. He has commanded Chang-Chih-tung and Yung-Chung, the President and Vice-President of the Board of Education, to follow the regulations for the public schools, so his son will derive the fullest benefits from his schooling, fearing that if

Great Britain, as the Emperor's instructor in English.

THE REGENT'S ECONOMY.

From the reports which have leaked through the palace gates to the outside world the Regent is practising strict economy in the expenditure of the Imperial finances and has set a personal example to his Imperial relations and high officials. An allowance of Taels 200,000 was appropriated for his personal expenses, but he cut it down to Taels 150,000 as being an ample sum. In the question of the expenses attending the funeral of the late Emperor, the Regent exercised the right of audit and refused to authorize the excessive charges. A huge sum was appropriated and expended, but on auditing the accounts the flagrant misuse of money and exorbitant charges for certain items were so apparent, that the Regent simply refused to

THE GREAT STATESMAN OF THE IMPERIAL FAMILY



(*From a Photograph taken previous to 1900.*)

HIS IMPERIAL HIGHNESS YI-KUANG, THE PRINCE OF CH'ING

PRESIDENT OF THE IMPERIAL GRAND COUNCIL AT PEKING, AND COMPTROLLER-GENERAL OF THE WAIWU-PU (MINISTRY OF FOREIGN AFFAIRS).

(*From a Recent Photograph*)

PRINCE CH'ING AND HIS FAVORITE GRAND-CHILD

THE SONS OF THE PRINCE OF CH'ING

H. I. H. PRINCE TSAI-CHEN,

SPECIAL ENVOY TO CORONATION OF KING EDWARD: NOW ON SPECIAL EMBASSY TO RETURN THANKS TO EMPEROR OF JAPAN FOR SENDING IMPERIAL REPRESENTATIVE TO EMPEROR KUANG-HSU'S FUNERAL.

H. I. H. PRINCE TSAI-FU,

IMPERIAL REPRESENTATIVE ACCOMPANYING H. E. TANG SHAU-YI ON THE SPECIAL EMBASSY TO RETURN THANKS TO AMERICA FOR THE REMISSION OF THE INDEMNITY, AND TO STUDY THE FINANCIAL SYSTEMS OF EUROPE.

His Highness, SHAN-CH'I; Prince SU

THE "IRON-CAPPED PRINCE" WHO ALONE IN THE ASSEMBLY OF PRINCES, IN 1900, PROTESTED AGAINST THE "BOXER" MOVEMENT. COMPTROLLER GENERAL OF THE IMPERIAL CLAN COURT, PRESIDENT OF THE BOARD OF THE INTERIOR, PRESIDENT OF THE BOARD OF NAVAL REORGANIZATION, ETC. ONE OF THE FOREMOST OFFICIALS OF THE EMPIRE.

allow the money to be paid, and severely reprimanded the officials responsible for the "squeeze." In the building of the mausoleum for the late Empress Dowager, Prince Tsai Chen, who is superintending the erection, submitted an estimate of Taels 3,000,000, but the Regent cut it down a million taels. In the matter of salaries, allowances, and general expenses of the Palace, there has been a marked decrease.

MAKING THE PRINCES WORK.

Perhaps the most noticeable effect of the new régime is the fact that the Regent intends to overturn old traditions and customs in regard to the exclusiveness of his Imperial relatives, and instead of drawing large sums from the State and spending their lives in indolence and luxury, they will henceforth have to work for their allowance. As far as possible members of the Imperial Clan, who are fitted through learning and experience, are being appointed to posts of activity and made to take their part in the affairs of state. Some are being sent abroad to secure the benefit of foreign travel, and open their eyes to the great world of the West which has heretofore been a sealed book and beneath their dignity to explore.

THE PRINCE OF KUNG.

The older generation of statesmen, who have so long guided the affairs of China, will soon pass away, and younger blood must take their place. The venerable Prince of Ching, the Imperial Statesman who has virtually directed the work of the Grand Council and the Wai-wu-pu for many years, is now too old to stand the strain, and has prayed to be permitted to retire. As it is cutomary to have at least one member of the Imperial family on these Boards, the Regent is now seeking amongst his cousins a suitable successor for this post. The most probable selection for this important office is His Highness Pu-wei, the Prince of Kung, a young man who has already shown a marked talent inherited from his celebrated grandfather, the Prince of Kung, the great Statesman and Regent of the last generation. This young Imperial Prince is a Lieutenant General of the Manchu Red Banner Corps, Acting Comptroller of the Imperial Clan Court, and last year was appointed by the Empress Dowager as High Commissioner for the Suppression of Opium, a post which he still occupies. Since then the opium question has loomed large in China, and the edicts issued from the Throne leave no room for doubt as to their sincerity in dealing with the subject. The Prince of Kung has a huge task on his hands, and one which will tax his ability. Up to the present he seems to have made considerable progress in his work, as the use of opium throughout the Empire is on the wane. While his qualifications for a place on the Grand Council are better than some of the other princes, the best selection is undoubtedly His Imperial Highness Prince Pu-Lun.

PRINCE PU-JU.

In connection with the little Imperial Prince Pu-ju, a story from Peking concerning him recently found its way into print. It appears that, when returning from the May races at Peking, the French Chargé d'Affaires jostled against the cart in which Pu-ju, Prince Kung's brother, was riding, and the young prince struck the diplomat across the face. An apology was demanded and refused, so the Legation Flag was hauled down and the Chinese Government given three days in which to apologize. The same story related that the other legations also took the matter up, and decided that in the event of the refusal of the Chinese Government to make honorable amends, all the Foreign flags would be hauled down and diplomatic intercourse broken off. As this contingency did not occur, the inference is that the apology was forthcoming, and, if the story is true, it seems natural to conclude that the fiery little Manchu received a well merited lecture and rebuke from his Imperial uncle, the Regent, for the loss of face of China.

PRINCE PU-LUN.

According to the time honored traditions of the Empire, Prince Pu-Lun was the legiti-

THE PRINCE OF THE HA-LA
TRIBE OF MONGOLS

mate and rightful heir to the Throne and should have been selected on the demise of Kuang Hsu, as will be clear on a brief résumé of his genealogy. The first son of Emperor Tao Kuang, who died in 1850, was named Yi-wei. He died without issue. The second son Yi-Kang also died childless. Yi-Chih, the third son, had one heir, Prince Tsai-chih, who was therefore the first in line of succession. In addition, Tsai-Chih was by Imperial Decree of Emperor Hsien-Fang ordered to become adoptive to Yi-wei and perform the sacra, which brought him also in line as the direct heir of the first son of Tao Kuang.

THE FAVORITE SON OF PRINCE SU,
HEIR TO THE TITLE. LATELY ORDERED TO GERMANY TO STUDY FOR A NAVAL CAREER

On the death of Emperor Hsien Feng in 1861, his son Tsai-Chun became Emperor under the name of Tung-Chih. He died in 1875. Now, according to Chinese custom, the successor should come from the following generation, which would have brought the choice to the eldest representative of the Pu generation, or the first son of Tsai-Chih. This son is Pu-Lun. But the old Empress Dowager overturned the traditions of the Empire, and placed the son of her sister, Kuang-Hsu, of the same generation

PRINCE OF TE-LO-TE-HAN
MONGOLS

of Tung Chih, on the throne. On the death of Kuang Hsu without issue, the succession should, according to tradition, have again reverted to the eldest representative of the Pu generation, but here again the determined old Empress imposed her stern will, and selected Pu-yi, the son of the Prince of Ch'un, as the occupant of the Dragon Throne.

DUKE GUNG
SON OF PRINCE CHUAN, ONE OF THE IRON CAPPED PRINCES

So rightly or wrongly according to the viewpoint, Prince Pu-Lun has been twice maneuvered out of the succession. Both Pu-Lun and Pu-wei (Prince Kung) were legitimate aspirants for Imperial honors, and both had many partisans in the Imperial Clan. It is reported that many of the palace intrigues, occurring after the death of Kuang Hsu, had for their object the furtherance of their desires to become Emperor in place of the son of Prince Ch'un. However, the will of the Empress Dowager has been enforced, Pu Yi reigns as Emperor Hsuan Tung, and the disappointed claimants have fallen in line, and are now lending their cordial support to the administration of the Regent.

Prince Pu-Lun is one of the most intellectual and advanced representatives of the Imperial

DUKE TAH
SON OF PRINCE NA

family. Although still a young man, he has filled some important positions. Since his appointment in 1896 to the command of the Bordered Yellow Manchu Banner, he has held the command of the Plain Red, Bordered Yellow and Blue Banner Corps. In 1904 he was sent as Imperial Commissioner to the St. Louis Exposition. While in the United States he was received at the White House by President Roosevelt and met many prominent officials. This experience greatly broadened his views, and like the Regent he is heartily in favor of such reforms which will elevate and benefit his country. In 1907 he was appointed to the Presidency of the Senate. This body is an assembly of Ministers whose duty it is to confer

THE HEIR TO H. H. PRINCE NA
DZASSAK OF THE KAALKA MONGOLS

on state matters and prepare the foundations of constitutional government. Prince Pu-Lun and the Grand Secretary Sun Chia-nai were appointed by the Empress Dowager to preside over this body, which was ordered to prepare details of the proposed scheme of a constitution and confer with the Throne. In this work the young prince collaborated with the older statesmen and worked in harmony with the Regent, who was then a member of the Commission on Constitutional Reform. The regulations drawn up by the Prince of Ching and Prince Pu-Lun and

THE CELEBRATED STATESMAN AND REGENT OF THE LAST GENERATION

H. I. H. YI-HSIN, THE PRINCE OF KUNG

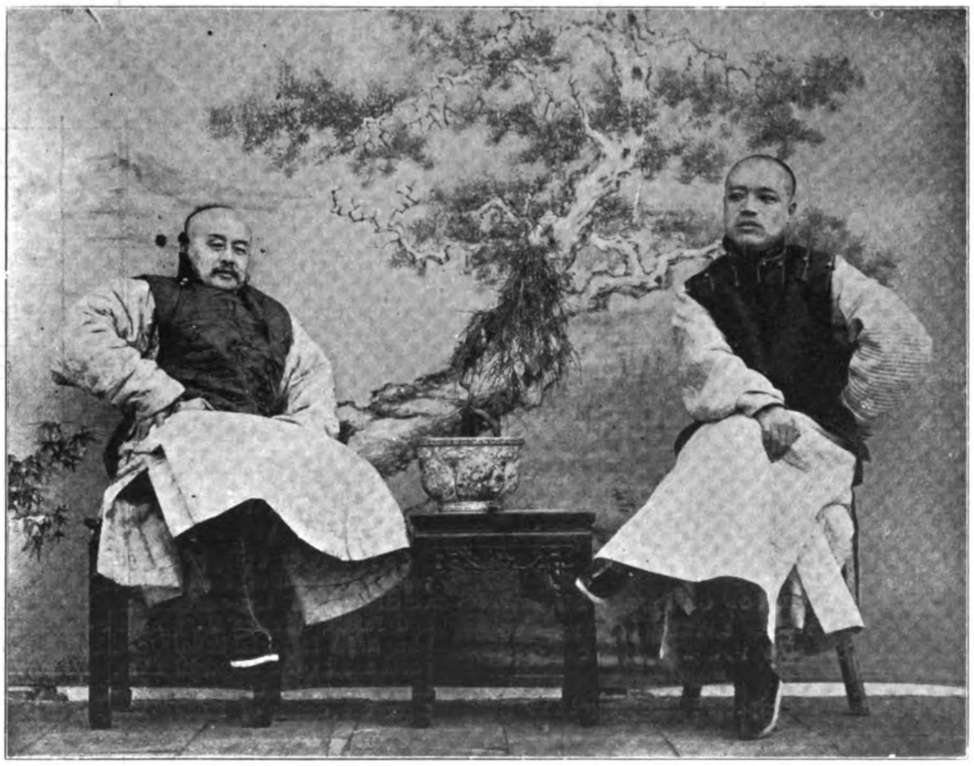
Pictures of his son Tsai-Ying and his grandson P'u-Ju are shown on page 67

HIS IMPERIAL HIGHNESS, PRINCE YU-LANG

IMPERIAL REPRESENTATIVE TO WELCOME THE AMERICAN FLEET AT AMOY, 1908; PRESIDENT OF THE NOBLES' COLLEGE; COMMANDANT OF PALACE GUARDS, ETC.

H. H. PRINCE LI (SHIH-TO),

ONE OF THE IRON-CAPPED PRINCES; PRESIDENT OF THE IMPERIAL CLAN COURT AND LIEUTENANT GENERAL OF THE BORDERED WHITE MANCHU BANNER CORPS



H. I. H. PRINCE TSAI-CHIH

SON OF YI-CHI, WHO WAS 3rd SON OF EMPEROR TAU-KUANG; ADOPTED BY HIS UNCLE, YI-WEI, FIRST SON OF THE EMPEROR. HE IS THE FATHER OF THE BRILLIANT YOUNG PRINCE PU-LUN

H. H. PRINCE NA (NAYENT'U)

A PRINCE OF THE FIRST ORDER AND DZASSAK OF THE KHALKA MONGOLS. GRAND CHAMBERLAIN OF THE COURT, AND LT. GEN. OF THE BORDERED YELLOW BANNER CORPS. ONE OF THE MOST POWERFUL PRINCES OF THE EMPIRE

other ministers, providing for the initial step of establishing Provincial Assemblies, met with the approval of the Throne and an edict was issued ordering the plan to be placed in execution. So here is an Imperial Prince that will be heard from later on, and his selection to fill the vacancy on the retirement of the Prince of Ching seems quite probable. In the event of the death of the young Emperor Hsuan Tung the question of the succession will again be reopened and, if old traditions are preserved, the legitimate choice must rest with the eldest representative in direct line of the next generation, which in this case is the infant son of Prince Pu-Lun, by name Yu-tsun. This coningency would make Pu-Lun Regent.

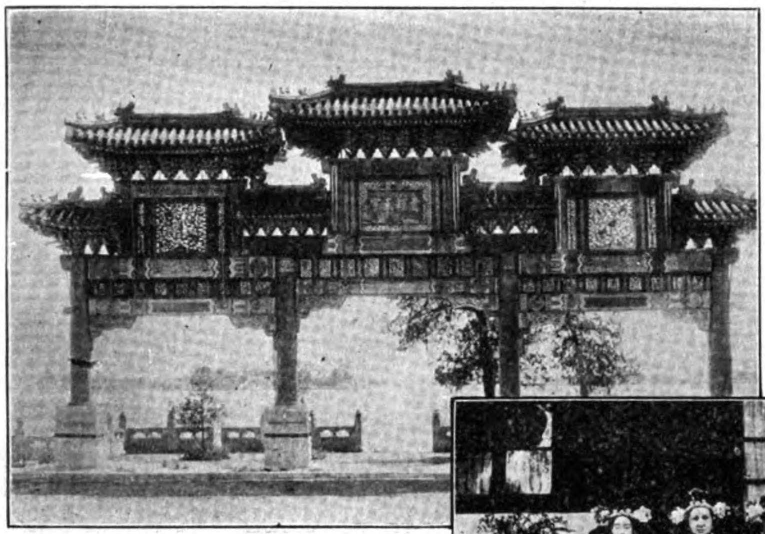
PRINCE YU-LANG.

One of the members of the Imperial Clan, who has recently risen to prominence and who has also shown marked ability, is Prince Yu-lang. He is a direct descendant of the Princes of Ting. The first prince of this house was the eldest son of Emperor Chien Lung, who reigned from 1736 to 1796, but the succession passed to the 15th son instead. Prince Yu-lang is a typical representative of the old Manchu race, as will be seen from his pictures. He has held several minor official posts at the capital, the most important as Vice-President of the Board of Interior in 1906. He was appointed last year as the Imperial Representative to welcome the American Battleship fleet at Amoy. This was his first trip away from Peking on official business. Under the new Regent Prince Yu-lang has been appointed Commandant of the Palace Guards and President of the Nobles' College. The Regent has entrusted to his charge the building of a new modern college for the Nobles, and as the funds are provided, this work will be carried out. Yu-lang is about 40 years of age, and is destined to take a high place in the affairs of China during the next decade.

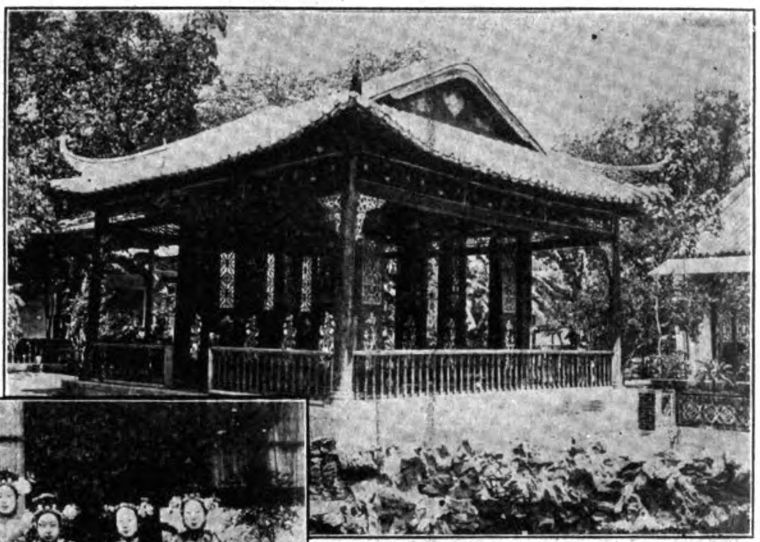
THE REGENT'S BROTHERS.

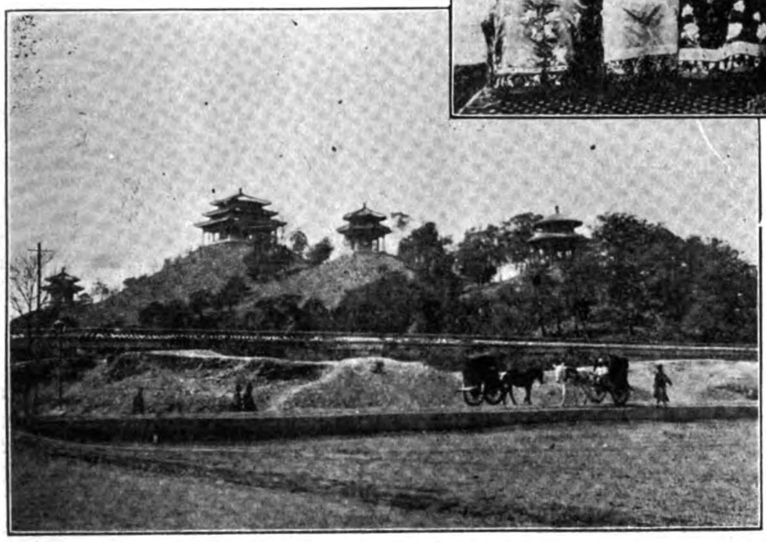
Two of the most interesting of the Imperial Princes are the brothers of the Regent, Their Highnesses Tsai Hsun and Tsai Tao. Neither

A PALACE ARCHWAY



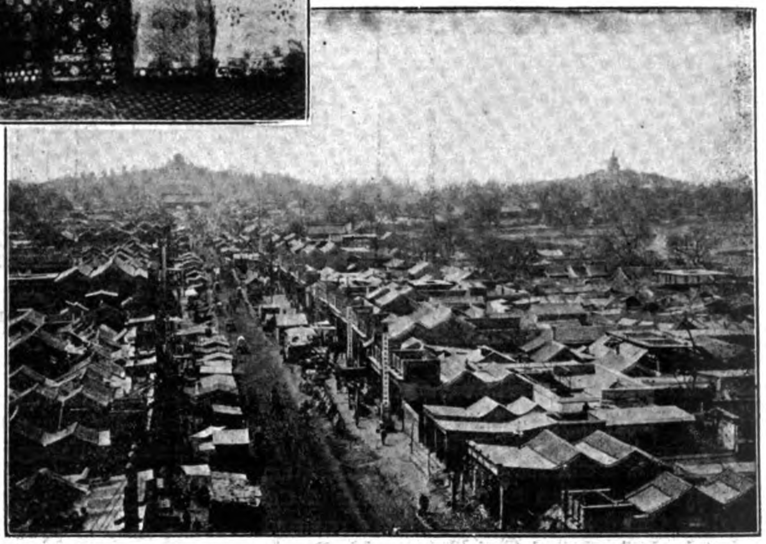
A PALACE PAVILION





PROSPECT OR "COAL" HILL

Immediately north of the Palaces, an artificial mound 150 ft. high, with five summits. Here the last Ming Emperor hanged himself when the Manchus took Peking in 1644

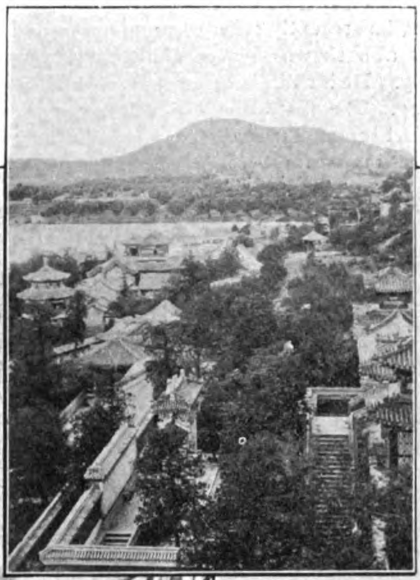


A VIEW FROM THE DRUM TOWER, PEKING

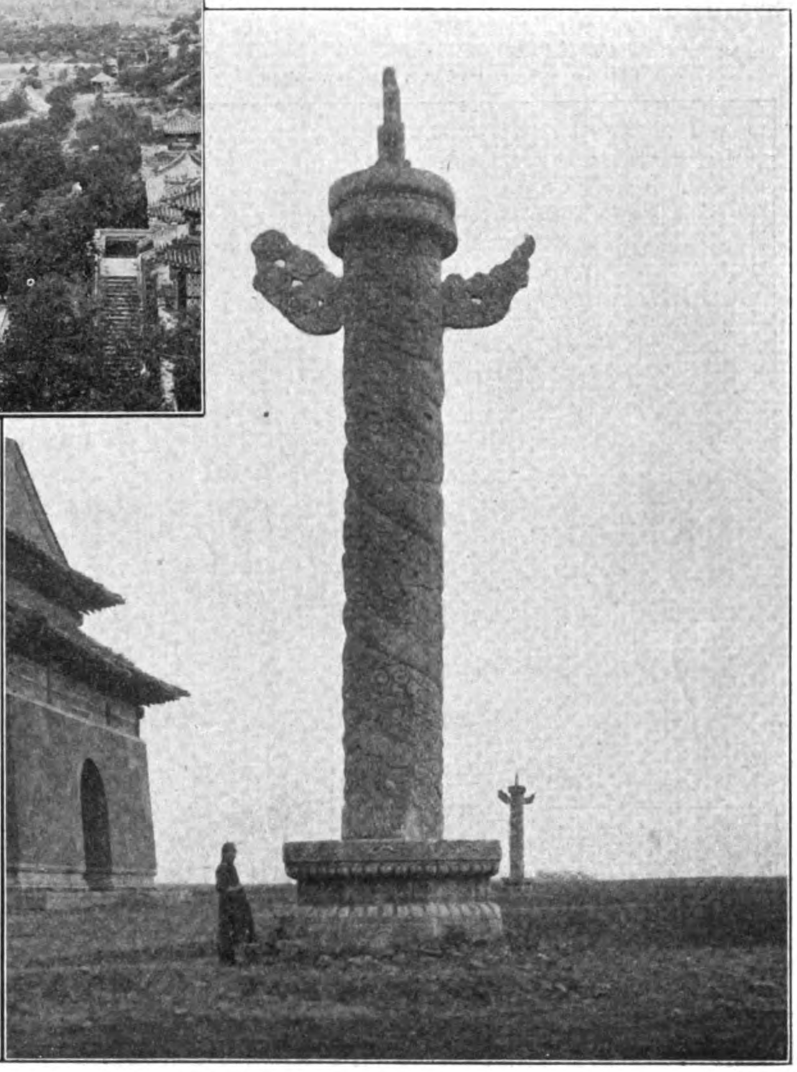
THE LADIES OF THE COURT, PEKING

LOWER ROW, FROM LEFT TO RIGHT: 2D DAUGHTER OF PRINCE CHING; 4TH DAUGHTER OF PRINCE CHING; PRINCESS SHUN, THE IMPERIAL PRINCESS; LATE EMPRESS DOWAGER; PRINCESS CHÜN (WIFE OF THE PRESENT REGENT); 3D DAUGHTER OF PRINCE CHING; 6TH DAUGHTER OF PRINCE CHING. UPPER ROW: MISS WANG (INTERPRETER); LADY YU-KENG, LADY YÜ, LADY YÜ, 1ST AND 2nd COURT LADIES; LADY YÜAN; PRINCESS TSAI CHEN; PRINCESS SHU.

VIEW FROM ABOVE THE SUMMER PALACES



His Excellency CHANG CHIH T'UNG,
FORMER VICEROY OF THE LIANG HU PROVINCES. GRAND SECRETARY, GRAND COUNCILLOR, PRESIDENT OF THE BOARD OF EDUCATION, ETC.



MARBLE PILLARS AT THE IMPERIAL TOMBS

has taken any active part in the affairs of state. As brothers of the late Emperor Kuang-Hsu and the Regent, they of course are the most important of all the Imperial Clan. Their chief official duty seems to consist in representing the Son of Heaven in praying for rain, or snow, or performing the many sacrificial duties at the various temples. The Regent has found for them useful occupation by appointing them to the commands of the Palace Guards, and it was recently reported that he had selected Tsai Tao to visit Russia to return thanks to the Czar for sending a representative to the funeral of the late Emperor Kuang-Hsu, but H. E. Tai Hung-Tzu, the President of the Board of Laws, was sent instead.

ELIMINATION OF PU-KUANG.

In the light of recent events, which explain the motives of the late Empress Dowager in choosing Pu-yi, the son of Prince Chun, as Emperor, it is interesting to follow the carefully laid plans by which the crafty old lady sought to eliminate any opposition to the choice through the claims of his only first cousin. The first Prince of Ch'un was married to a sister of the Empress Dowager, and had five sons. The first, Tsai-Kuang, died without issue. The second, Kuang-Hsu (Tsai-tien), was made Emperor, and finally died without an heir. Tsai-Feng, the third son and heir to the title, had two sons. Tsai-Hsun, the fourth son, had one heir named Pu-Kuang. Tsai-Tao, the fifth son, has no issue.

When the Dowager decided on making the son of Tsai Feng Emperor, she proceeded to clear the way, by eliminating his one rival in the family, Pu-Kuang, the son of Tsai-Hsun. Tsai Tao was ordered to become adoptive to Yi-Mo, a prince of another branch, and Pu-Kuang was then adopted as his heir. This shuffle of the cards left only the son of Tsai Feng in line, without fear of any claims from his cousin.

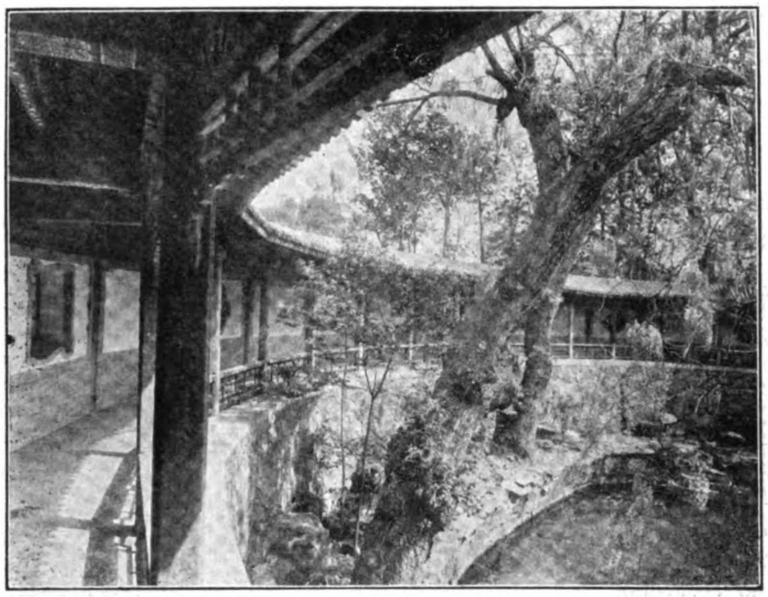
THE PRINCE OF CHING.

The oldest and ablest of China's statesmen holding office to-day is the venerable Prince of Ching.

Yi-K'uang, better known as the Prince of Ching, was born in 1836 and succeeded to his father's title as Prince of the Second Order in 1884. His first political post was that of President of the now abolished Tsung Li-yamen or State Department. The following year he became Second Director of the Imperial Clan Court and Associate Director of the Board of Admiralty. His next posts were Grand Chamberlain, Vice-President of the Imperial Clan Court, Lieut.-General of the Bordered Yellow Banner and from August, 1891, Superintendent of Customs and Octroi at Peking. In the following month he became Director-General of the Board of Admiralty. In 1894, besides being elevated to the position of Prince of the First Order, he received the posts of Director of the Imperial Equipage and Superintendent of the Imperial Armoury. His next post was President of the Council of Government (April 1901) and a few months fater he again became President of the Tsung Li-yamen. His next offices were: Grand Councillor (1903); President of the Council of Army Organization (1903), and Comptroller-General of the Army Board (1907). As High Commissioner he was appointed to negotiate the anti-bellum treaty with Japan and that regarding Manchuria in December, 1905, and he was one of the Plenipotentiaries who signed the Peace Protocol in 1901. Though high in the favor of the late Empress Dowager, he was unpopular with the Emperor Kuang Hsu

The Prince of Ching belongs to the progressive wing of the Grand Council, and, in 1900, he, with Jung Lu, the then Viceroy of Chihli, was

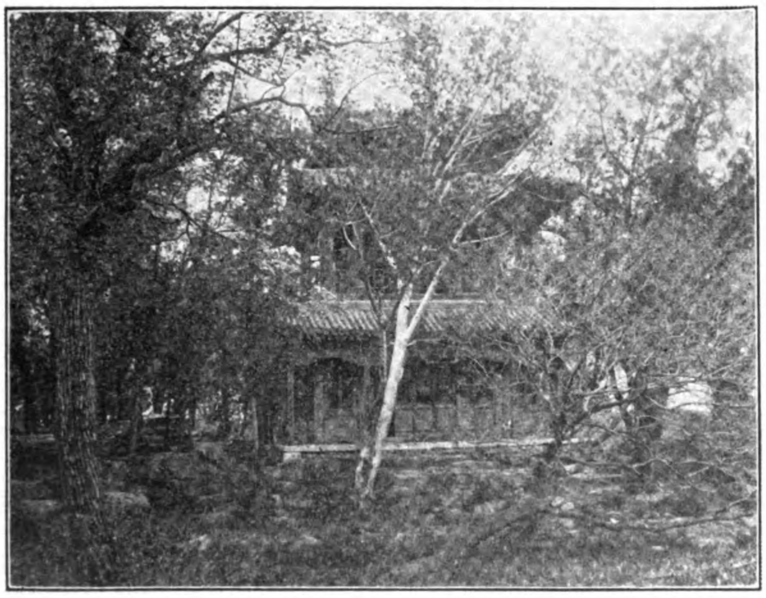
instrumental in postponing the attacks on the Legations. He has directed the affairs of China through many crisis, been actuated by sincere and patriotic motives in his official actions, and has given the best part of his life to the service of the Empire. Although it is claimed that he is neither a strong or brilliant statesman,



PALACE BUILDINGS, IMPERIAL CITY, PEKING

IMPERIAL HOT SPRINGS, NEAR PEKING

(Marble baths are provided for the Imperial Family, but no longer visited).



IMPERIAL HOT SPRINGS, NEAR PEKING

HIS IMPERIAL HIGHNESS, PRINCE YU-LANG

and too weak to influence his colleagues on any matter of state, his record is full of incidents which elevate him high above any of the other Chinese diplomats of the last decade. During the life of the late Empress his influence was greater than that of any other official. While Yuan-Shih-kai also carried great weight in the

decisions of the Empress in certain matters of government, he was a Chinese, and as such impossible to surmount the racial barrier existing between Manchu and the conquered race. The Prince of Ching, as the representative of the Imperial family on the Grand Council and Senior President of the Wai-wu-pu, exercised at all times the predominant influence with the Throne, and to-day, although aged and infirm and praying for retirement, he still has the full confidence of the Regent. On his withdrawal from office, another member of the Imperial family will be appointed as his successor, and whether it is the Prince of Kung or Prince Pu-lun, it is natural that they too will inherit the same power and influence with the Regent as the only Imperial Manchu representatives on these high boards.

THE LATE KWANG-HSÜ, EMPEROR OF CHINA (TSAI T'IEN)

BORN AUGUST 1872; DIED NOVEMBER, 1908

PRINCE TSAI-CHEN.

The Prince of Ching has two sons and many daughters. The eldest son, Prince Tsai-Chen, is accounted one of the best looking of all the Manchu Princes, and at the same time has the reputation of being the celestial prototype of Don Juan and the most accomplished rake and debauché in Peking. He has filled several important official positions. His first appointment was the command of the Bordered White Manchu Banner Corps in 1901.

In the following year he was sent as special ambassador to the Coronation of King Edward, and in 1903 was made President of the Board of Commerce. In 1904 he was appointed Minister of the Presence, and in 1906 carried out a special mission to Manchuria to report on conditions.

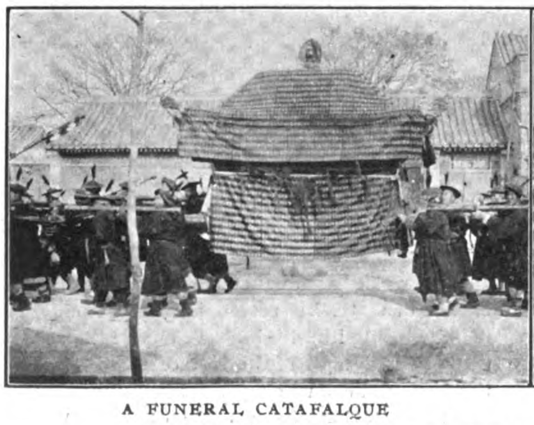
The result of the mission was the reorganization of Manchuria into a Viceroyalty and the creation of three new Governorships, which, although nominally at the disposal of the Empress Dowager, were really the patronage of his father The Prince of Ching.

An aspirant for gubernatorial honors was Gen. Tuan Chih-Kuei, the Commandant of the Tientsin Modern-Drilled Military Police. Knowing the weakness of the young prince he sent him as a gift for his harem one of the most beautiful and accomplished Chinese girls of the North. Tsai-Chen was charmed with the bribe, accepted it, and Tuan Chih-Kuei was appointed Governor of Heilungkiang Province by Imperial Edict. But he never reached his post. A censor denounced Tuan to the Throne for bribing Tsai-Chen with the gift of a concubine, and the latter for accepting the present. Despite the undoubted power and influence of Prince Ching, Tuan was degraded, and his son, the Prince, compelled to resign all appointments in May 1907. For two years he has nominally been in disgrace, but the Regent has apparently restored him to favor, by appointing him as Special Envoy to return the Imperial thanks to the Emperor of Japan for sending Prince Fushimi to attend the funeral of the late Emperor Kuang Hsu.

Reports from Peking state that the selection of Tsai Chen for this mission has created some bad feeling in Japan. Prince Fushimi, the Japanese Envoy to the funeral of Emperor Kuang Hsu, is an Imperial Prince of the first rank, and he was attended by a large suite of officials on his mission. It is claimed that the Japanese embassy committed some diplomatic blunders while in Peking which the Chinese deeply resented. The invitations issued to the banquet tendered by Prince Fushimi in honor of the Imperial Princes of China, were improperly worded, and instead of being signed by the Prince, bore the signature of an under official. Prince Kung indignantly returned the invitation. Prince Fushimi's embassy returned to Japan carrying with them the resentment of the Regent and the Imperial Clan, and the appointment of Prince Tsai-Chen to return thanks for this mission is constructed by the Japanese as evidence of the Regent's disapproval.

THE FUNERAL OF THE LATE EMPEROR: THE HEAD OF THE PROCESSION

Tsai-Chen, while the eldest son of the Prince of Ching, does not inherit his father's rank of Prince of the First Order, as, under Chinese law, the rank decreases each generation until finally the descendants reach the level of commissioners, unless the title is bestowed without diminution. In addition to his inferiority in rank, his past record and disgrace detract from his standing So it is claimed that Tsai-Chen's appointment will increase the friction between the two countries.



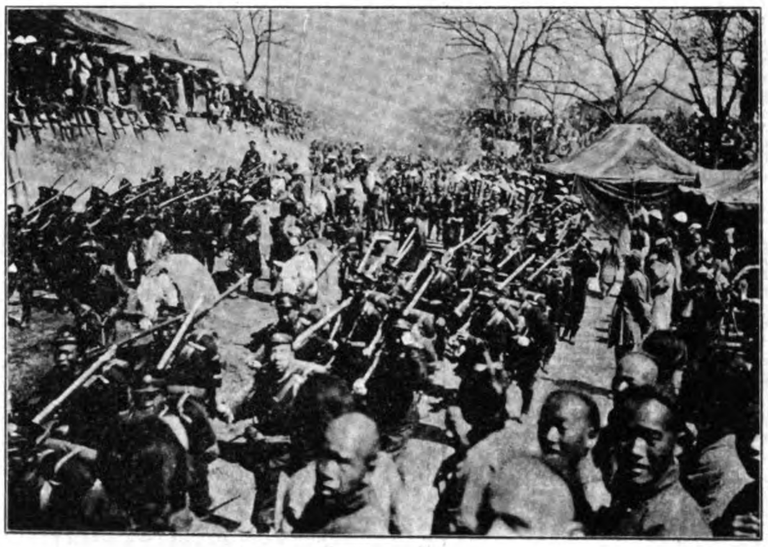
A FUNERAL CATAFALQUE

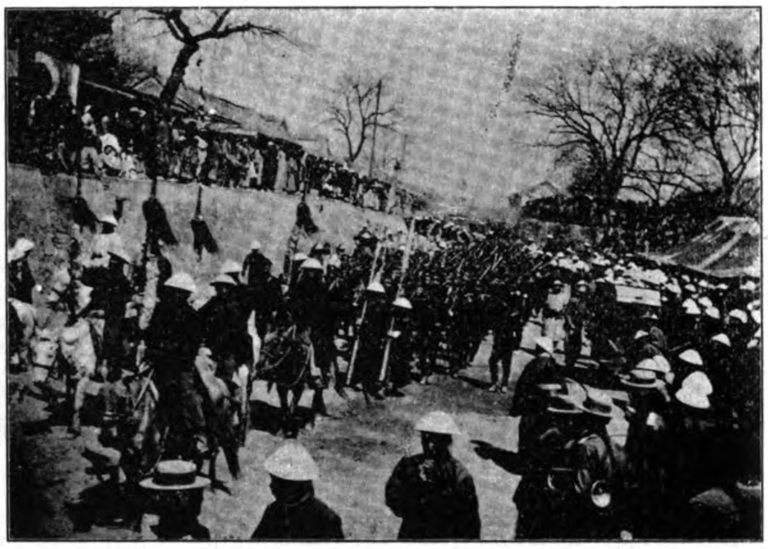
AN ELABORATE CATAFALQUE

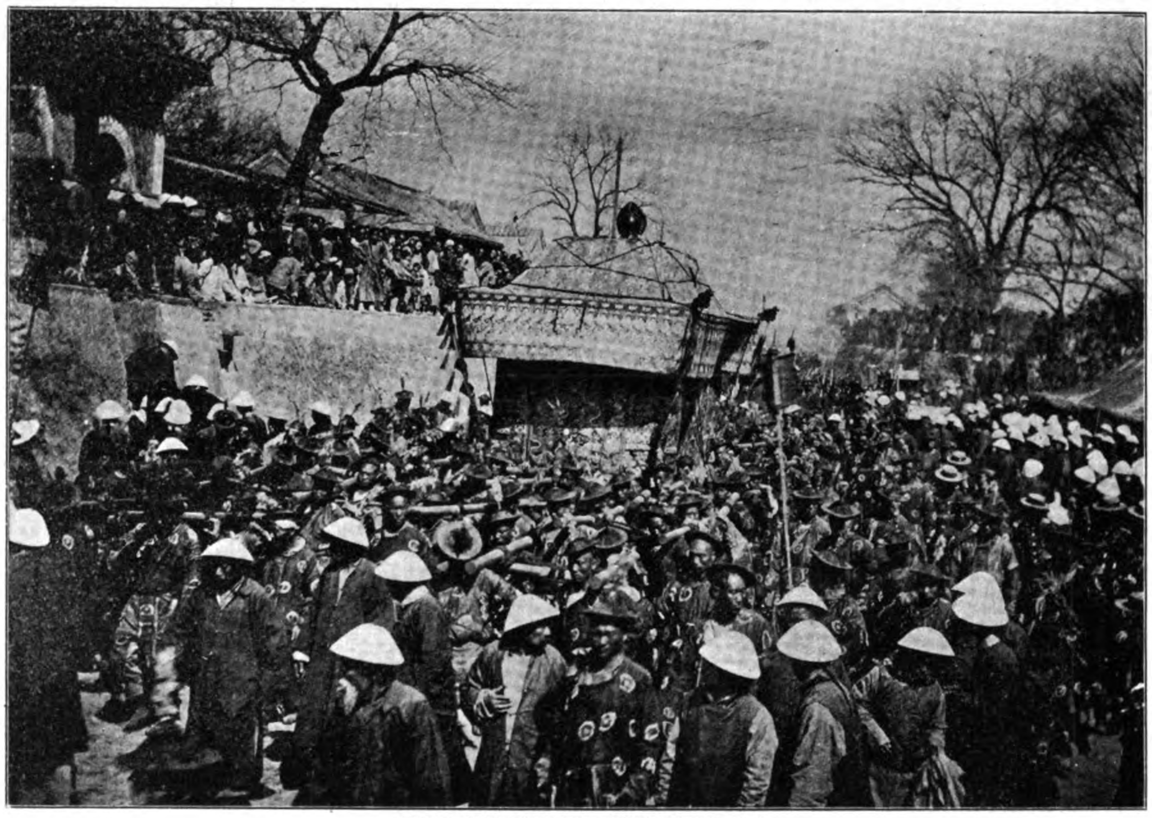
A PEKING FUNERAL

These funeral scenes of high officials are reproduced as a comparison to the eloborate cortege pictured on the following page.

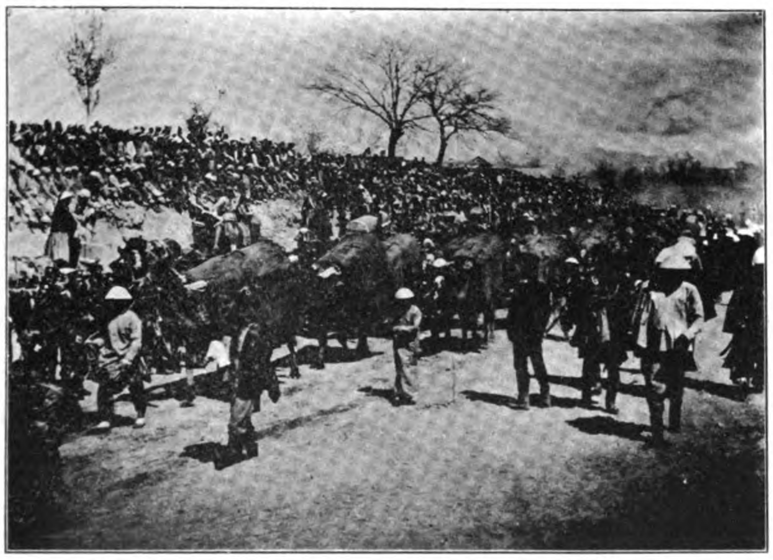
THE FUNERAL OF THE "SON OF HEAVEN"





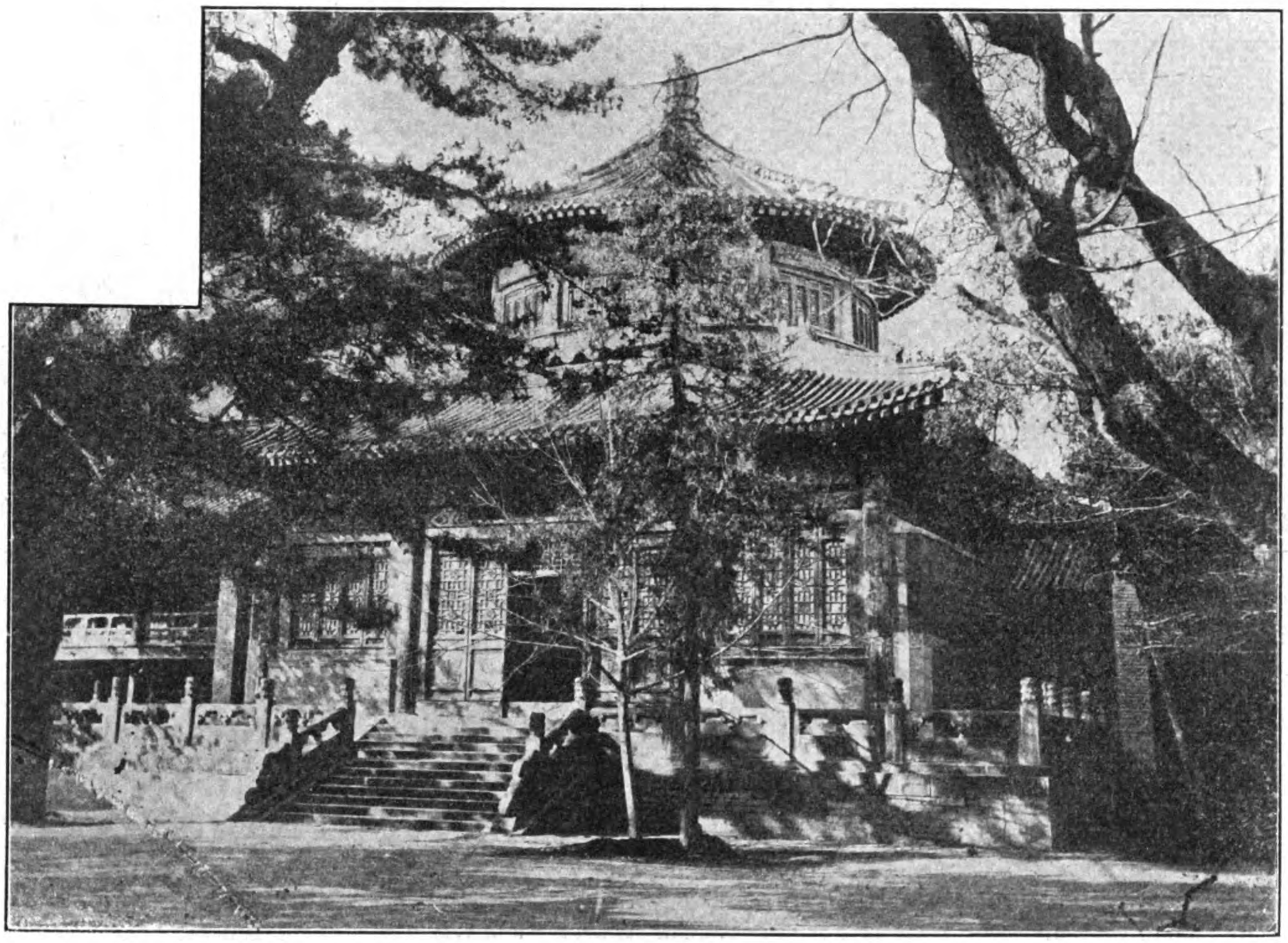


THE IMPERIAL CATAFALQUE



SCENES FROM THE FUNERAL PROCESSION OF THE LATE EMPEROR, KUANG-HSU

PEKING, MAY 1909.



BELL TEMPLE, PEKING, IN WHICH HANGS THE GREAT BELLL

LLAMA TEMPLE

A Visit to the New Factory of the Chee Hsin Cement Company, Limited, at Tangshan, N. China

The above factory is situated at the foot of a hill, called "Tong-shan," north-east of a village of the same name, generally known as the mining-centre of North-China, the site of the large locomotive and car-shops of the imperial railways of N. China, as well as the Mining and Railway Engineering College.

By the courtesy of the directors of the Chee Hsin Cement Company, Limited, I had the opportunity to visit their newly erected works, and I was greatly surprised of what I became to see.

In huge buildings—a very rare sight in China, indeed—machinery of the latest type only has been erected for the process of burning and grinding Portland Cement.

The whole machinery is driven by a 750 hp. compound steam engine of the newest style, the steam being produced in 3 sets of up-to-date Babcock-Wilcox Water-tube Boilers. Electric light is installed throughout the factory.

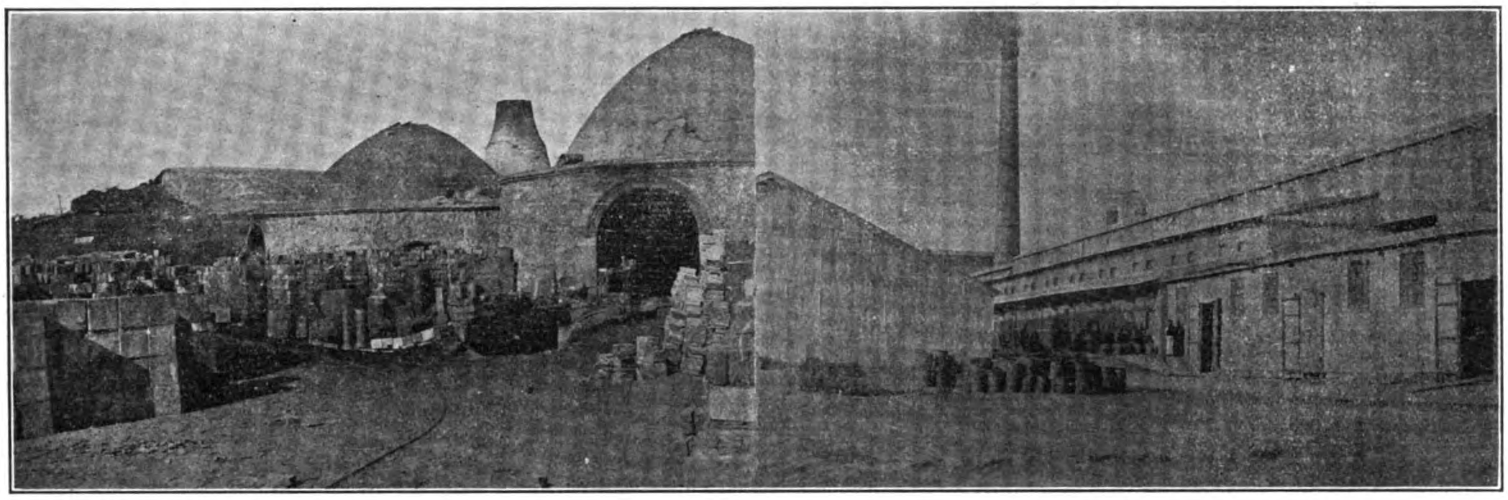
The raw-materials for the cement are found in enormous quantities in the "Tongshan Hill," and are of excellent quality. A double track of narrow-gauge railway connects the works with the quarries.

Brought in in tip-waggons, the raw-materials are given into "Stone-Crushers," where they get broken to small pieces, and from which they are elevated to "Revolving Drying-Drums" for being dried by the surplus heat of the "Rotary-Kilns."

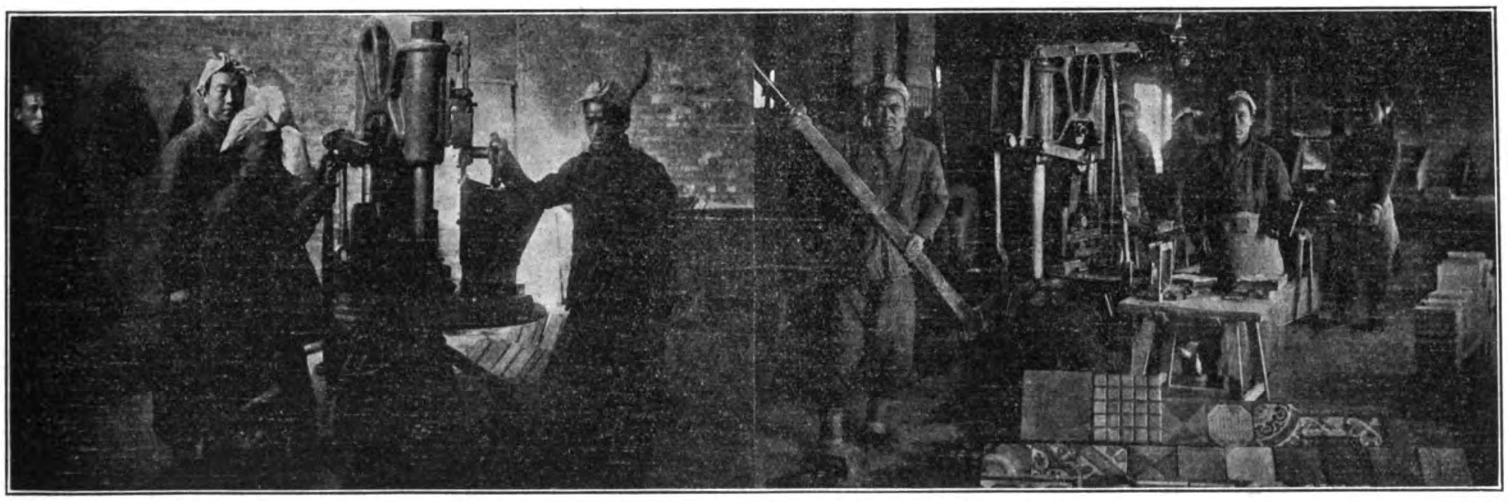
From the "Drying Drums" the broken materials are conveyed to Silos for Raw-Material and from there to the "Kominors"—large Ball-mills, each containing about 2 tons of steel balls. In these "Kominors" the raw-materials get coarse-ground, before being transported to the so-called "Dana" tube-mills, where they are ground to a very fine flour. These tube-mills are partly filled with flintstones. Transportworms arranged under the tube-mills bring the raw-flour about 50 feet high into Rawflour-Silos, built on top of the "Rotary-Kilns." Special emptying-works carry the required raw-flour into these kilns, in which "the cement-clinker" are being burnt. Each rotary-kiln is about 100 feet long. By the revolutions of the kilns the raw-flour moves towards the lower part of the kilns and meets on the way a dust-coal-flame, by which it conglobates, thus forming the "cement-clinker." The compact material (clinker) then fall automatically into "cooling-drums," arranged under the rotary-kilns. These "cooling-drums" produce hot-air, which is partly used for drying the dust coal for burning clinker, and for burning clinker as well (air-combustion in the rotary-kilns). I noticed that the whole work, from the moment in which the raw-materials pass the stone crushers until the burnt clinker leaves the cooling-drums underneath the rotary-kilns, has been done automatically.

The coal for burning clinker is being burnt in a special drying drum before it passes a ball-mill and a tube-mill, after which it gets transported to coal-flour-silos. By special ventilators the coal gets, together with hot-air, blown into the rotary-kilns.

Exact the same arrangements for grinding the "Clinker" have been made as for grinding the raw-materials, viz: Ball-mills, Tube-mills, the necessary Transportworms, etc.



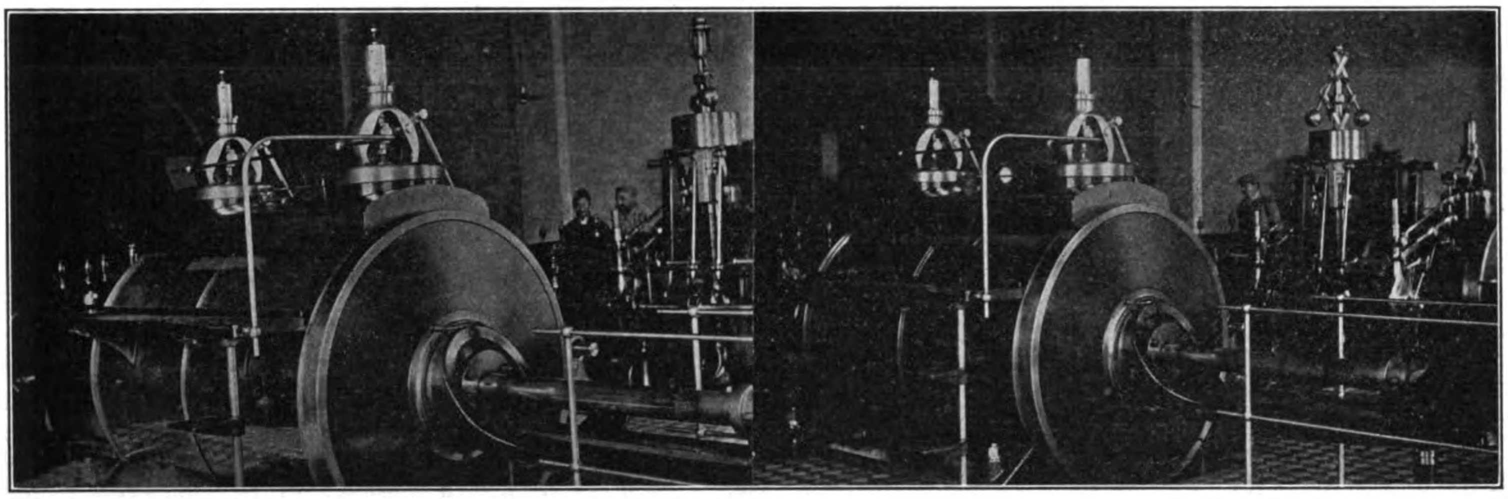
VIEWS OF THE CHEE HSIN CEMENT COMPANY'S PLANT AT TONGSHAN, CHINA



WHERE THE TILES ARE MANUFACTURED

The cement, which passed the cement-tube-mill, shows an astonishing fineness.

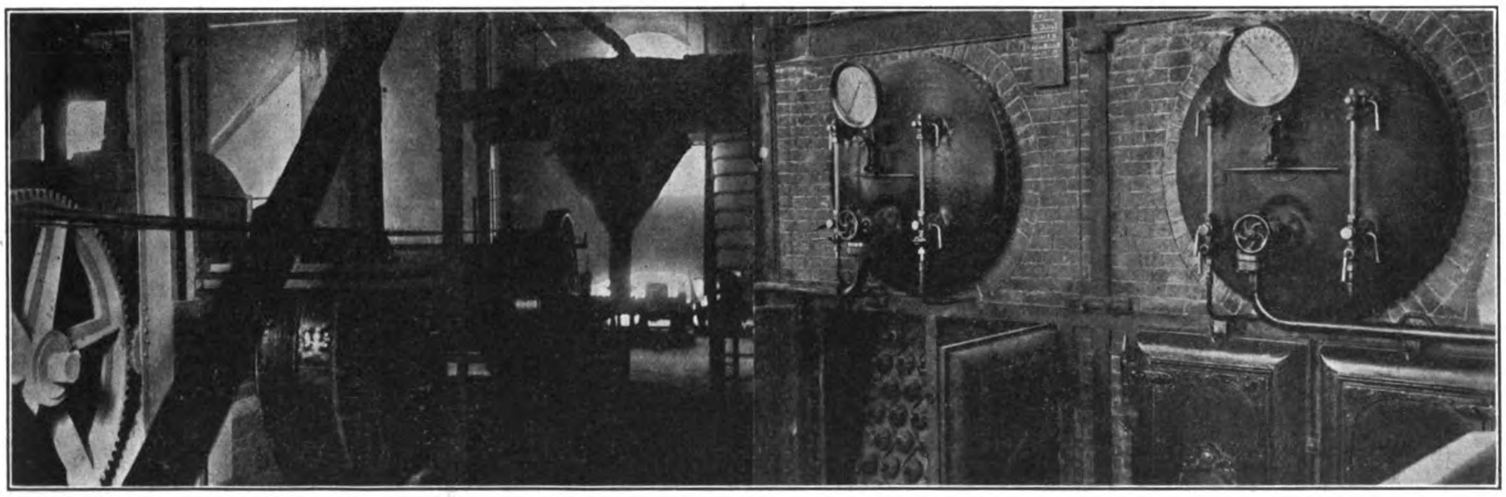
The ground cement is transported from the tube-mills to a large godown by means of an endless india-rubber transport band. On each side of this godown there are large sheds for storing the packed cement (packed in wooden and iron barrels as well as in bags), and railway-sidings connect these sheds with the Imperial Railways of N. China.



ANOTHER VIEW OF INTERIOR OF CHEE HSIN CEMENT PLANT

A splendidly furnished laboratory being established in a byhouse of the offices.

In a separate department for cement articles beautiful cement mosaic tiles of all designs and colours are being made, for which the Chee Hsin Cement Company use their own cement. The same department also turns out other cement-articles, such as cement-paving tiles, pressed, grooved and smooth, for side-walks, verandahs, etc., cement drain pipes, of different sizes, round and oval, further



INTERIOR VIEW OF CHEE HSIN CEMENT PLANT

cement pillars, horse mangers, and any other article made of cement. As a specialty pressed and glazed cement roofing tiles in different colours are being made.

At another department, all kinds of fireclay articles will be turned out in the same way as at home. Handmade and machine-pressed firebricks, tiles, etc., are made and kept in big stocks.

There seems to be a great demand on cement in North China, and both, directors as well as the management of the Chee Hsin Cement Company, are to be congratulated on this promising enterprise. —X. Y. Z.

* MINING OUTPUT OF THE PHILIPPINES

Production.—Table III.—Production of gold and silver by Troy ounces. Compiled by H. G. Ferguson.

Source	Gold 1907	Gold 1908	Silver c 1907	Silver c 1908
Ambos Camarines	100	3,470*b*	7	190*b*
Mountain Province *a*	3,888*b*	6,690*b*	*Not given*	2,120*b*
Sorsogon (Masbate)	352	30	76	10
Surigao	—	270*b*	—	30*b*
Total	4,540	10,460	83	2,350

a. The former provinces of Benguet and Lepanto-Bontoc have now been combined in the Mountain Province.

b. Including estimate of native production.

c. Except in the case of Sorsogon (Masbate), the silver production is an estimate based on the amount of gold.

The Metals.—The production of over 10,000 ounces of gold during the year 1908 more than doubles that of 1907. Taking into account the fact that up to this time the mining industry has been in the experimental stage and that capital has held aloof awaiting results, it is fair to presume that this rate of increase will continue during the present year.

From investigations carried on by Messrs. Goodman and Ferguson, of the Division of Mines, the results of which are set forth more fully in the forthcoming annual bulletin, *The Mineral Resources of the Philippine Islands*, we are able to make the following statements, and these should be prefaced with the remark that they refer to the state of the industry in March of this year. In Benguet, which is now a part of the Mountain Province, work has been progressing steadily. The Consolidated Mining Company has a 9-stamp Hendy mill and a complete and modern cyanide plant. The mine is opened up by tunnels with an aggregate length of over 900 meters and about 100 meters of cross cuts. The ore body is apparently in a fissure vein, one of a system, one set of which runs approximately north and south and the other east and west.

The Bua Mining Company possesses a 6-stamp mill and cyanide plant similar to that of the Consolidated Company. The ore body is opened up by 600 meters of drifts, 150 meters of cross cuts, and a 30 meter raise. About 1500 cubic meters of ore have already been removed by stoping.

*Press Bulletin of the Division of Mines, Bureau of Science. Warren D. Smith, Chief.

The Camote mine, which is situated a short distance below these properties on the same river, the Antimok, is opened up by tunnels at four levels with a total length of 250 meters. The ore is crushed in a small 3-stamp mill made in Manila.

Mr Kelley's claims on Gold Creek have been developed by about 570 meters of workings and large bodies of ore blocked out. Rich telluride ore, very much resembling the Colorado ore, has been discovered on this property.

The Headwaters Mining Company, one of the latest in the district, has driven three small tunnels in apparently very promising ore; it is still too early to make any prediction as to the future of this property.

In the Paracale district most of the ground suitable for dredging purposes has been located, but as yet only one dredge is in actual operation. This has been at work for over a year with remarkable results. Two other dredges are nearly completed. The characteristic feature of dredging in this field is that a large per cent of the values occur in a rich streak close to the bed rock with from 30 to 35 feet of over-burden. Still this ground is so rich that according to the dredge master's reports the average value per cubic yard amounts to ₱2.00. The cost of dredging is estimated to be in the neighborhood of $.15, U. S. Currency, per cubic yard. This, of course, is still very high, but should be lowered considerably as the conditions are better understood.

In this district there still remains a considerable area of very promising ground for lode mining. Lode mining has been delayed by conflict in regard to titles to claims, but now that the Philippine Legislature has firmly established the legal status of several old Spanish concessions, there should be no further friction in regard to these at least. At the present time the two most important of the old Spanish mines, the San Mauricio and Tumbaga, have been reopened and work begun. On the San Mauricio a 20-stamp mill is being set up and sufficient underground work done to insure production in the near future. At the Tumbaga the old works have been unwatered, and preparations made for continuing the old shafts.

There are many other claims on which American miners have started work, but they are still in the prospect stage. The Paracale Miners' Association has shown its progressiveness in procuring the services of a doctor for the camp and arranging for an extension of a telephone line to the district.

A road is being built from Indang to Paracale. The Insular Government is now contemplating the opening of the reef which at present obstructs the entrance to the Malaguit River. The Bureau of Lands and the Bureau of Science have a joint party in the field engaged in making an accurate map of the district.

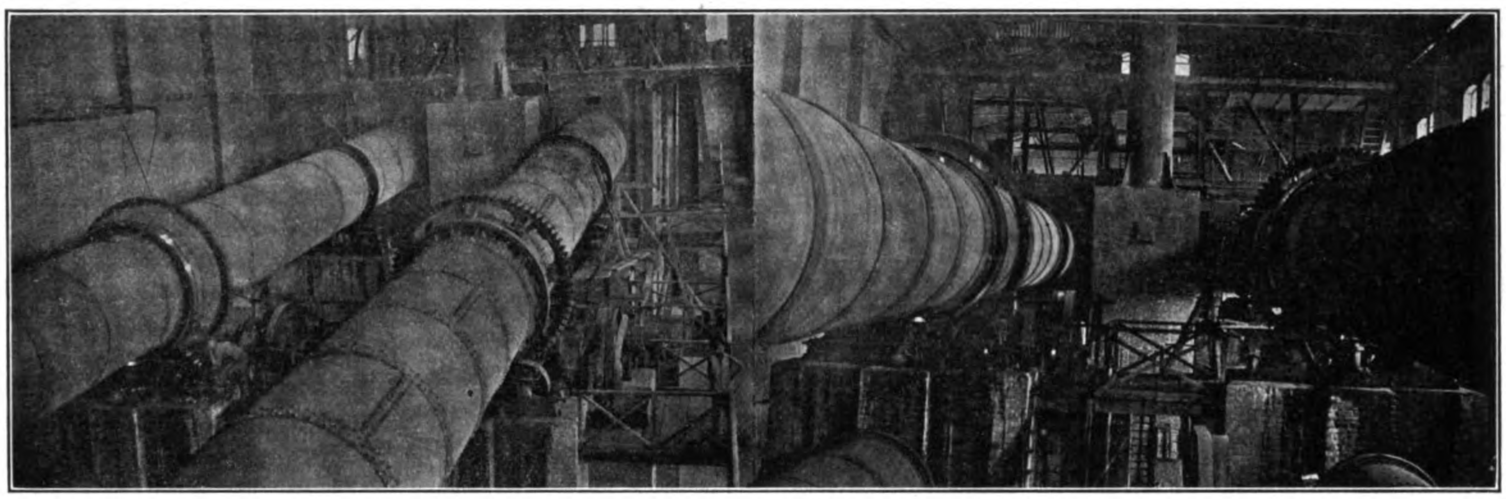
Masbate.—Masbate is recovering from its period of depression, and development work gives every hope for a healthy growth of this district, a district which gives every indication of being one of the best producers in the Islands. The principal work of the year has been done by the Keystone, Colorado, and Eastern companies. A topographic map of the mining district of Masbate has already been made by Mr. Ferguson, and the geological work will, it is hoped, be in the press at a very early date.

Other districts, from which we may expect to hear more in the future, are Suyoc, in the Mountain Province; Binanlonan, Pangasinan; Peñaranda, Nueva Ecija; Catanduanes, and the Surigao Peninsula of northern Mindanao. According to work done in the last named place by Mr. Goodman, very promising placer ground is to be found there. As to lode mining, the prospects are not so good, as the gold occurs in quartz stringers in a schist formation.

Copper.—The Mancayan copper district of Northern Luzon is at present in a quiescent state. All examinations made of the district have so far as we know been favorable. A lack of transportation and the considerable outlay of capital that would be necessary, coupled with the present low price of copper, has kept the district down.

A deposit of native copper occurs in Masbate near Milagros; it has been worked at intervals for the last hundred years. Lately, however, veins of gold-bearing copper sulphides have been discovered in the same region.

Iron.—There have been no developments in the iron industry and the only production at present is reported from the Hizon mine near Angat, Bulakan.



ROTARY OVENS INSTALLED IN THE CHEE HSIN CEMENT COMPANY'S PLANT

* METRIC SYSTEM VERSUS OLD STANDARD

The English system of weights and measures is the recognized standard in all English speaking countries, and it is in the United States, England, Canada, and Australia that the metricists are now working hard to have the metric system made compulsory by legal enactment; but no amount of legal enactment will, in my opinion, ever compel the people to throw aside the good old fashioned measures such as inch, foot, yard, pound, pint, quart, and gallon. Compulsory legislation of this class can never "compel" the people to adopt another new and unfamiliar system. The history of the adoption of the metric system by some countries has nothing to commend it to the minds of the people. Over a century ago the metric system was forced on the French people. In fact, the metric system is a product of the French Revolution, as Danton issued a decree during the height of the Reign of Terror, on August 1, 1793, ordering that the new system of weights and measures, based on the measurement of the meter, then supposed to be one ten millionth part of the distance from the equator to the pole—which measurement has in late years been found incorrect—and, although the most drastic and compulsory laws were made by the Red Republic, the manufacturing interests held to the old French measures and to-day, after 113 years, silk is still measured by the French Aune. The present metric system is but a fragment of what it was originally, for then it embraced the divisions of the year, the day, the circle, and the mariner's compass. The day was divided into ten hours, but the French people refused to have a ten hour day and the speed of French ships is to this day measured in English knots and sea distances in English miles.

In making the change from the present to the metric system of pipe threading it would be well to consider the fact that the gas and water pipes in our homes alone would keep the old or present measure of pipe threads alive for several generations as a gas or water pipe is good for at least fifty years, and we may be sure then that, so long as those pipes remain

*Report submitted by Mr. Milton E. Springer, Chairman of the Legislative Committee of the Manila Merchants' Association, in support of a petition to the Philippine Government asking that the Weights and Measures Law providing for the introduction of the Metric System be suspended indefinitely.

in our homes, gas fixtures, water spigots, etc., will have to be made to fit the present thread, notwithstanding any amount of compulsory legislation, for the people would refuse to tear out their present systems of gas and water pipe and put in new ones threaded according to the metric system.

Therefore, we would have on hand not only two different standards for pipe fittings, but a third set of fittings—transition fittings. For example, for each simple reducing bushing we would require four combinations instead of one which we have now. The combinations would be: English inside and outside; metric inside and outside; English outside and metric inside; and English inside and metric outside. Every factory contains overhead lines of shafting which with the pulleys are all made to a standard. Standard pulleys can be changed from place to place by simply removing and replacing, but put us a metric line of shafting and there is not a pulley in this country, except the common wood-split pulley, that would fit it. A line of shafting scarcely ever wears out, and here again comes the necessity of either removing and replacing it with a metric line or still using the old one.

We have all learned to think in the old system of weights and measures, and although one may have had years of experience in the use of the metric system, he will invariably turn to the old system when thinking of measures or weights of things. Captain Mahan, U. S. N., although an earnest partizan of the metric system and has freely used it for 30 years, says that he finds difficulty in thinking in the system. He says that stating resistances in kilogrammes per square inch conveys no meaning to his mind, that it is necessary for him to convert the expression into pounds per square inch.

Germany and France still use the English screw thread standard. Now, if the change from the present system to the metric is so feasible and so easily accomplished as its advocates state, why does not Germany adopt the metric screw thread? Her continued use of the English thread is another illustration of the difficulty in changing a unit of length.

Take the matter of Bolts. An inch and one-eighth bolt is equivalent to a 28.6 millimetre bolt. Now if a farmer breaks a $1\frac{1}{8}$ bolt he knows what size it is and can easily order another, but if he has to calculate or consult some list and find out how many millimetres the bolt measures he finds himself greatly inconvenienced. No man can keep in his mind the metric equivalents for a line of bolts, say from one inch to ten inches, running by sixteenths.

There is no advantage in the metric system over the present one, so far as every day purposes are concerned. It is simply a matter of simplicity, and having no advantage but rather great disadvantages. Why torment the people by making an unnecessary change and compelling them to adopt a system almost absolutely unknown to them? Does anyone suppose for an instant that the Filipino people will throw away their present measures and adopt the metric system, even though compelled to do so by law? No, the old system will still be used and it would require a special guard for each tienda or store to compel the observance of the law.

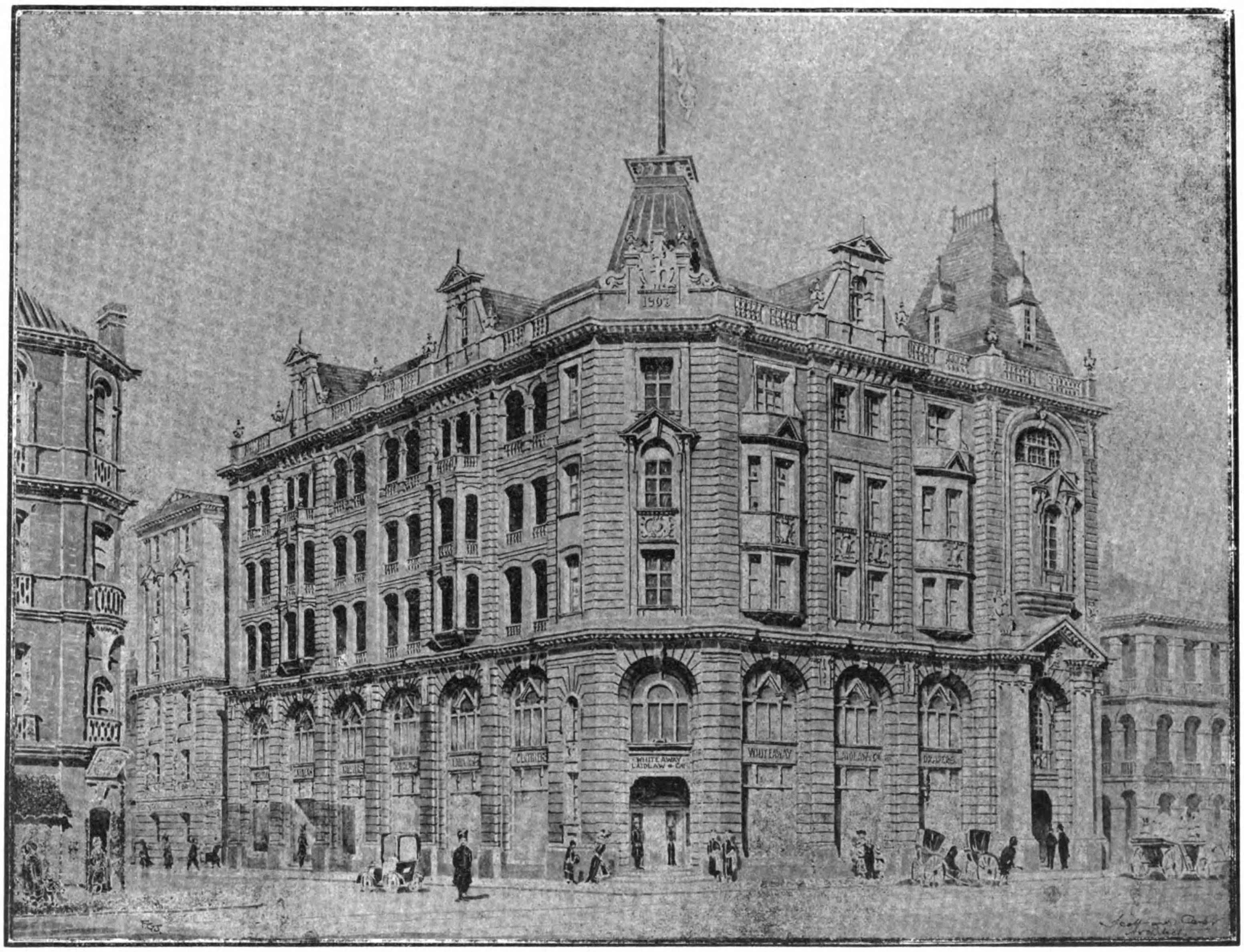
The metricists say that this change can be made without any trouble within a few years. It has taken forty years to standardize the existing standards, and yet we are asked to make a change which has nothing to commend it, nothing but confusion, and why then destroy our old standards for new ones that are no better and which will become the standard after possibly a century of confusion.

In the French textile industry the manufacturing standards of weights and measures are not metric in a single industry notwithstanding the fact that the metric system was adopted by law over one hundred years ago.

The French line, which is 1-12 of a French inch, was the standard of measuring the width of narrow fabrics long before the French Revolution. French is the home of the silk ribbon industry and to-day the measure of ribbons is the French line, in fact it is a measure which is the standard for the world. The metric system is not used for this industry anywhere.

Our English standards of weights and measures have become a part of the daily lives of the people, and any attempt to change these standards would be met with strenuous opposition. Our present ideas of length, area, weight, and volume are too strongly ingrained in our minds to permit us to throw them aside and take up with a system that has had a century of failure in endeavoring to change even the textile standards in France

In conclusion it might be well to say that the simple fact that a country has adopted the metric system does not prove by any means that the people of that country use the system. I may refer to the experience of the German Empire where it is supposed that the metric



WHITEAWAY LAIDLAW BUILDING, NANKING AND SZECHUEN ROADS, SHANGHAI, CHINA. CHINA OFFICES OF THE FAR EASTERN REVIEW

system is in use, but where one finds that 124 articles of commerce are bought and sold under the old system of pounds (English) and gallons (English) it does not present a very strong argument for the metric system. You may change a nation's name by conquest, but you can never change its loyalty to its traditions by that means, and so it is with changing the system of weights and measures, you may legislate and legislate, but the people will continue to use the old inch, foot, pound, pint, quart, etc., until the end of time.

Much can be written about the persistence with which the old units are adhered to in the so-called metric countries. But I would direct special attention with reference to the German textile industry, the French textile industry, also the German mechanical industries, Scandinavia, Greece, Turkey, Treaty Ports in China, Japan, Egypt, Philippine Islands with their multo-measures, Spain, Mexico, Cuba and other Spanish American Countries, and the general persistence in metric countries of the old units.

One must not lose sight of the fact that because a country has adopted the metric system that it is the only standard that that country possesses. In spite of the legislation of Congress, the foot, the yard, and the pint and quart will continue to be the measures of the people.

*PHILIPPINE COMMUNAL FORESTS

A tract of forest land which has been set aside for the exclusive use of the residents of a town or community, is known as a Communal Forest. In this forest, the people can get timber and other forest products for their own use, free of charge.

A license, or permit, to obtain free timber of the lower groups is not needed, but, if first group timber free of charge is wanted, for the construction of a house of strong material, it must be obtained by a special permit from the Bureau of Forestry. This provision has been made to prevent people from stripping a forest of its most valuable trees.

Communal Forests do not become the property of a town, but remain always in the possession of the Insular Government, and under the supervision of the Bureau of Forestry. A number of forests have been set aside since the law providing for the establishment of them was passed two years ago. Most of these are in Northern Luzon.

First group trees, such as Molave, Narra, Ipil, Tindalo, and others, which furnish the best timber for the construction of permanent buildings, are quite rare in most provinces. The Communal Forests offer a good opportunity to the towns to plant such trees, and provide for a future supply of valuable timber. All towns which intend to do some planting will be aided, in every possible way, by the Bureau of Forestry. Tagudin, in the sub-province of Amburayan, and Caba in Union Province, have already taken steps to plant Molave and other valuable woods, in their Communal Forests.

As soon as time, and available personnel, permits, the Bureau of Forestry will make working plans for all Communal Forests; these plans will regulate the cutting of the trees, and provide for natural reproduction, as well as for planting. The purpose of these working plans will be to secure from a forest the largest possible returns, for the benefit of the inhabitants of the town, for whose use the forest has been set aside.

Those towns in Europe, having Communal Forests, do not allow the people to take what they need, but the trees are cut under the supervision of a forester in the employ of the town, and then the timber is sold at public auction to the highest bidder. In this way the people do not get the timber itself free, but the money derived from the sale of it goes into the town's treasury, and helps defray the expenses. In some instances, the revenue obtained from the Communal Forests is so large that it pays all, or nearly all, the expenses of the town.

Bulletin Philippine Bureau of Forestry.

FAR EASTERN COMPANY REPORTS

The Shanghai Dock and Engineering Company, Limited.—The following is the directors' report which was submitted at the third annual meeting of the shareholders held at Shanghai, July 8th:

The Directors submit herewith their report with statement of accounts made up to April 30, last.

The net profits for the year ended on April 30, 1909, including the amount brought forward from last year, and after paying all charges allowing for all known liabilities, amount to Tls. 282,261.46.

After deducting the interim dividend of 2½ per cent on 55,200 shares paid in January this year, which absorbed Tls. 138,000, there remains for distribution the sum of Tls. 144,261.46. This amount the directors recommend to be dealt with as follows, *viz.*:—

A final dividend of Tls. 2.50 per share	Tls. 138,000.00
Amount to be carried to new account	6,261.46
	Tls. 144,261.46

Mr. Jas. Johnston retired from the Board on leaving for Europe, and Mr. H. J. Craig was appointed to fill the vacancy. His election requires confirmation.

In accordance with § 98 of the memorandum and Articles of Association, two of the Directors, Messrs. David Landale and H. A. J. Macray, retire, but, being eligible, offer themselves for re-election.

The accounts have been audited by Messrs. J. E. Bingham and F. N. Matthews, who retire, but, being eligible, offer themselves for reelection.

PROFIT AND LOSS ACCOUNT.

(Cents Omitted)

Dr.	Tls.
1909. January 6.	
To 2½ per cent interim dividend on 55,200 shares	138,000
1909. April 30.	
To Directors', auditors', and Hongkong agency fees	8,400
To Balance	144,261
	Tls. 290,661

Cr.	Tls.
1908. May 1.	
By Balance carried forward	33,742
1909. April 30.	
By Transfer fees collected during year.	183
By Interest received and estimated accrued on investments, deposits, and current account with Bank, less interest on cash deposits with Company	14,383
By Transfer from general working account	242,351
	Tls. 290,661

BALANCE SHEET

Liabilities

1909. April 30.		Tls.
Capital Account.		
Registered capital—55,700 shares at Tls. 100	5,570,000	
Subscribed capital—55,162 shares issued at Tls. 100 fully paid up	5,516,200	
38 shares at Tls. 100 due members of the late S. C. Farnham, Boyd & Co., Ld., to be issued on application	3,800	
55,200 shares.		5,520,000
Reserve Fund. (Taken over from the late S. C. Farnham, Boyd & Co., Ltd.)		1,000,000
Unpaid Dividends. (Taken over from the late S. C. Farnham, Boyd & Co., Ltd.)	5,124	
The Shanghai Dock & Engineering Co., Ltd	33,845	
		38,969
Sundry Creditors. Local bills, etc.	31,664	
Employees' deposit accounts	2,524	
Directors', auditors' & H.'K. agency fees	8,400	
		42,588
Profit & Loss Account. Balance at credit of this account		144,261
		Tls. 6,745,819

1909. April 30.

PROPERTY ACCOUNT.

Assets.

Land:	m.f.l.h.	Tls.
"Old" Dock, as per title deed	20 2 8 9	
"Cosmopolitan" Dock, as per title deeds	162 2 4 1	
"International" Dock, as per title deeds	127 6 7 3	
"Tun-ka-do" Dock, as per title deeds	35 6 9 5	
"New" Dock, as per title deeds	48 6 4 3	
Pootung engine works, as per title deeds	54 3 1 8	
Total	449.8.5.9	
	Value Tls.	1,729,419

DOCKS, BUNDINGS, WHARVES AND WALLS:

"Old" Dock, "Cosmopolitan" Dock, "International" Dock, "Tunkadoo" Dock, "New" Dock, Pootung engine works	1,239,906
Harbour moorings	23,355
Buildings:—At all establishments	464,019
Machinery and plant:—At all establishments	1,129,798
Tools, patterns, and gear:—At all establishments	104,120
Steamers, launches, and vessels	154,900
Pontoons, steam dredgers, piledrivers, etc	75,772
Furniture:—Office and drawing office furniture, drawing materials and appliances, plans, etc	19,615

STOCK ACCOUNT.

Value of materials on hand	1,095,692
Sundry Debtors. Accounts in course of collection, including Value of completed portion of unfinished work (Tls. 22,624.41) and Tls. 12,003.45 secured by promissory note, dated September 7, 1905	285,041

INVESTMENTS AND DEPOSITS

6 North-China Insurance Co., Ltd	Shares
22 Hall & Holtz, Ltd	"
18 Yangtsze Insurance Association, Ltd	"
1 Hongkong Fire Insurance Co., Ltd	"
10 Canton Insurance Office, Ltd	"
128 Shanghai Mutual Telephone Co., Ltd	"
5 Shanghai Ice C. S. and R. Co., Ltd	"
100 Kochien T'p't'n' and Tow Boat Co., Ltd	"
Tls.	17,690

NOTE:—There is a small contingent Liability for uncalled Capital on certain of above investment.		
Hongkong and Shanghai Banking Corporation Fixed Deposits.........	305,000	
Telegram Deposit.........	175	
Cash—		
In hand..................	13,752	
On current account with Hongkong and Shanghai Banking Corporation....	87,560	
		101,312
		Tls. 6,745,819

Shanghai, June 21, 1909.
JAS. H. OSBORNE, *Secretary.*

JOHN PRENTICE,
A. M. MARSHALL,
C. MICHELAU,
DAVID LANDALE,
H. A. J. MACRAY,
H. J. CRAIG,
} *Directors.*

We have examined the above balance sheet with the books and accounts of the Company for the year ended April 30, 1909. The stocks of materials and machinery, plant and tools have been certified by the secretary and manager respectively; practically no depreciation has been provided on the Company's assets, but we are informed that same have been efficiently maintained out of revenue. Subject to this, the above balance sheet is, in our opinion, a full and fair balance sheet properly drawn up so as to exhibit a true and correct view of the Company's affairs as shown by the books of the Company.

J. E. BINGHAM, F.I.A. (N. Z.), } *Auditors.*
ERIC M. ROSS, C.A.
Shanghai, June 24, 1909.

KALEE, LTD.—At the annual meeting a dividend of 2% was directed paid.

TANJONG PRIOK DRY DOCK CO., LTD.—For the year 1908 this company paid a dividend of 10% against 9% for the year 1907.

THE DEUTSCH-ASIATISCHE BANK.—The German-Asiatische Bank reports for 1908 a gross profit of Tls. 1,798,391, against Tls. 1,617,796 for the previous year. After paying all expenses there remains a net profit of Tls. 909,584 (Tls. 869,623 for 1907), out of which Tls. 79,107 (Tls. 75,023) are applied for reserve purposes, which latter fund is thereby increased to Tls. 1,264,675. After writing off Tls. 73,626 (Tls. 62,884) from bank buildings, etc., the shareholders receive a dividend of 8½ per cent. (8 per cent).

SHANGHAI LIFE INSURANCE CO., LTD.—The report for the year shows the assets of the company to be Tls. 543,596.43, an increase of 58%, and the insurance fund amounts to Tls. 440,096, an increase of 58% for the year. The premiums earned amount to Tls. 403,716, an increase over previous year. New business offered during the year amounted to Tls. 1,874,177 of which Tls. 1,737,527 was accepted. The business in force amounted to Tls. 4,966,917.

S. MOUTRIE & CO., LTD.—At the tenth annual meeting of this company a dividend of 4% was declared and $4,667 was carried forward.

SHELL TRANSPORT TRADING CO., LTD.—The accounts for 1908 show a credit to the profit and loss account of £710,551. Deducting management, legal and other expenses (£7,557), there remains £702,994 to be carried to the balance-sheet. From this amount preference and interim dividends have already been paid. The directors do not deem it necessary to appropriate any sum to reserve, which remains at £720,000, with £100,000 at the credit of reserve fund. There remains a balance of £422,994, from which the directors recommend a further and final dividend of 10 per cent. payable on July 5 (making 20 per cent. for the year), leaving £192,994 to be carried forward.

THE TEBONG RUBBER AND TAPIOCA ESTATE, LIMITED.—The following is the report on accounts of this company for the year ended January 31st, 1909:—A profit of Tls. 50,921.28 has been made on the year's working, out of which the directors recommend the payment of a dividend of 1s. per share at exchange 2/6 amounting to Tls. 26,400; to set aside Tls. 1,000 as provision against bad and doubtful debts, and to write off buildings, reservoirs, etc., machinery, furniture and sundry implements 10 per cent. or Tls. 4,977.22; which, after appropriating Tls. 1,500 for directors' fees, and Tls. 150 for auditors' fees, leaves Tls. 16,894.06 to be carried forward.

THE A. W. BUTLER CEMENT TILE WORKS, LTD.—At the fifth annual meeting held recently a dividend of 6% was authorized.

THE SHANTUNG RAILWAY COMPANY.—The profits of the Shantung Railway Company at Berlin amounted in 1908 to m.2,965,377, against m.2,903,480 in 1907. A dividend of 4½ per cent., the same rate as for 1907, was declared. The result was unfavorably influenced by the decline of silver, in consequence of which the receipts of $2,590,990 (1907, $2,355,696) have only given m.4,646,099 (m.5,036,043).

THE CHINA MUTUAL LIFE INSURANCE COMPANY, LTD.—The following is the directors' report for the year ended March 31, 1909:

Your directors beg to submit for your consideration their report for the Company's eleventh year, ended March 31, 1909.

Although during the past year there has been no part of the East where the Company has agencies which has shown any material improvement over the depressed trade conditions of the preceding year, the Company has not only been able to equal fully the records of preceding years as regards new business, but as regards all other items, such as income, interest, assets, reserve and surplus, which denote the financial progress of the Company, substantial gains are recorded.

Your directors report with much satisfaction that the Company's application for a licence to transact business in the United Kingdom has been accepted by the Board of Trade, and that in accordance with the requirements of the Board, securities to the value of £20,000 have been deposited with the Government authorities in England.

New Business.—New applications received during the year amounted to Tls. 9,244,365.00, being a slight increase over the total for the preceding year. Policies were issued for Tls. 8,594,425.00 and applications amounting to Tls. 649,940.00 were postponed or declined as being below the required standard of health.

The total insurance in force as at March 31, 1909, amounted to Tls. 25,540,614.00 under 14,695 policies.

Income.—The total income for the year amounted to Tls. 2,305,376.11, a gain over that for the previous year of Tls. 327,480.27.

Interest.—The income from Interest amounted to Tls. 272,091.61, being an increase over that for the previous year of Tls. 29,419.08.

Assets.—The total assets now amount to Tls. 5,335,867.56, being an increase over the total assets as at the end of the previous year of Tls. 889,840.25.

Reserve and Surplus or Insurance Fund.—The total of this fund which represents the amount held by the Company as reserve liability for the security of policyholders and for distribution of bonuses now amounts to Tls. 5,163,789.40, being a gain over the amount of the fund as at the end of the previous year of Tls. 863,820.52.

The revenue account and general balance sheet from which the above figures are taken have been duly certified as correct by your Auditors, Messrs. A. R. Leake & Co., who have also examined the Company's securities.

Your directors beg to announce that Alexander McLeod, Esq., of Messrs. Gibb, Livingston & Co., of Shanghai, has since the date of the last Annual Meeting joined the Board of Directors, and owing to the absence from Shanghai of Mr. R. Macgregor, he has been elected Chairman in his stead. The appointment of Mr. McLeod to the Board of Directors is subject to your approval, which you will be asked to give at this meeting.

Alexander McLeod, Chairman; R. Macgregor, Director; C. Stepharius, Director; Lee Yung Su, Director; J. A. Wattie, Managing Director.

Arthur J. Hughes, Secretary; S. B. Neill, F.I.A., F.S.S, Actuary.

Medical Directors:—G. E. Goode, M.R.C.S., L.R.C.P.; Hermann Balean, M.D., B.S., [Lond.]

REVENUE ACCOUNT.
(Cents Omitted.)

	Tls.
Amount of funds at the beginning of the year..................	4,299,968
Premiums received (after deduction of Re-Insurances).........	2,029,952
Interest.......................	272,091
Income from other sources.......	3,332
Tls......................	6,605,344

	Tls.
Matured endowments and bonuses	115,132
Claims under policies............	460,095
Surrenders paid under policies retired........................	104,494
Payments to annuitants.........	1,003
Commission....................	487,558
Rents, salaries, travelling and all other agency expenses, medical fees, advertising, and all other expenses....................	268,266
Dividend to shareholders.........	5,000
Amount of funds at the end of the year........................	5,163,789
Tls......................	6,605,344

GENERAL BALANCE SHEET
Liabilities.

		Tls.
Shareholders' capital		
Subscribed.........	500,000	
Less not called up.....	450,000	
		50,000
Insurance fund.......		5,163,789
Claims admitted but not paid...........		65,945
Sundry creditors......		56,132
Tls.		5,335,867

Cr.
ASSETS.

Property Land and Buildings:—			
B. C. Lot No. 52, Tls. 300.00 at 75........		$400,000	
B. C. Lot No 6115, Tls. 11,000 at 75....		14,666	
			$414,666
Cash in Hand.........			8,265
Stock as per Inventory			233,789
Fixtures & Furniture.		8,790	
Added during the year.		1,706	
		$10,496	
Less for Depreciation 10 per cent. say.....		1,049	
			9,447
Sundry Debtors.......			61,917
Hankow Branch:—			
Stock account........		33,939	
Fixtures and Furniture..	$2,000		
Added during the year...	177		
	$2,177		
Less for Depreciation 10%..	217		
		1,960	
Sundry Debtors.......		4,585	
H'kong & S'hai Banking Corporation.....		2,340	
Cash in Hand.........		337	
		$43,162	
Less Sundry Cr.......		589	
			42,573
Share Investment—			
4 North-China Insurance Co., Ltd. @ Tls. 63 and Exchange 73.		$345	

16 S'hai Mutual Telephone Co., Ltd. @ Tls. 52, and Exchange 73..........	1,139	
		1,484
Unexpired Fire Insurance..............		2,623
		$774,767

We certify that all our requirements as Auditors have been complied with, and we report that in our opinion the above Balance Sheet is properly drawn up so as to exhibit a true and correct view of the state of the Company's affairs as shown by the books of the Company. The stocks have been taken and valued by the Heads of Departments and are certified as correct by them and the General Manager.

ARTHUR R. LEAKE & Co.,
Chartered Accountants.

The annual meeting of shareholders and policy-holders of the China Mutual Life Insurance Co., Ltd., took place in the offices of the Company, Canton Road, June 7th. Mr. A. MacLeod, Chairman of Directors, presided, and among those present were: Messrs. C. Stephanus, J. A. Wattie, (Directors), Zia Zeding, George Mooser, N. B. Clayton, W. S. Davidson, Lee Yung-su, Wang I-ding, John P. Sung, Edward Bell, J. Dughton, S. B. Neill, A. J. Hughes, and Loftus E. P. Jones, legal adviser.

In addressing the meeting the Chairman said: Before commencing the business we have to transact this afternoon, I think perhaps a few words of explanation why I am occupying this position should be given you. As you know Mr. Robert Macgregor, who has been your Chairman for some years, has gone home on a vacation, and in his absence the Directors were kind enough to invite me to replace him while he is away. I therefore have the honor of occupying the chair here this afternoon for the first time. In submitting the Directors' Report for the year ending the 31st March last, I am glad to be able to make the same statement which my predecessors have for so many years past been able to make with never-failing regularity, that, as the Report will show, a very substantial progress has been made by the Company during the past year in all those points which go to make up financial strength. The new insurances applied for, although only slightly in excess of the total amount for the preceding year, establish a record, the total amount being $9,244,365, the total business in force amounting at the 31st March to over twenty-five and a half million taels. This amount would have been considerably larger but for the fact that during the past year important changes in the Company's rules and regulations have been made, whereby all policies on which premiums are outstanding for more than a stipulated time are cancelled before the books are closed. This accounts for the reduction which may be noted in the outstanding premiums for the past year, as compared with the same item for the preceding year, the reduction being about Tls. 60,000, instead of which, in the ordinary course of events, there would have been a substantial increase in this item. It is quite possible, and the practice is often adopted by companies where the progress is not as satisfactory as they would like to represent, to inflate the business in force by retaining as in force many policies on which the premiums have been outstanding for an unreasonable length of time. Your Directors desire that their report of the Company's affairs shall represent as nearly as possible the actual standing of the Company in every respect, and anything tending to this end is a step in the right direction. A substantial gain in the total income of the Company is noted of Tls. 327,-480.27, or over ten per cent. This represents a daily average income for the year of over Tls. 6,300. As stated in the Report, the Company has since the date of the last meeting fulfilled the requirements of the Board of Trade in England and secured a license to transact business in the United Kingdom. Messrs. Thomas Cook and Son still remain the Company's collecting agents for the United Kingdom and Europe. As soon as the Hongkong authorities learned that the Company had made the required deposit in England, they returned to the Company, without any application on our part, the deposit of Tls. 200,000 which we had made with them. The Company have written the Hongkong authorities asking them to retain on behalf of our policy-holders this deposit of Tls. 200,000. To this letter no reply has as yet been received. I am glad of this opportunity of making this explanation, in view of a statement recently appearing in the press in connection with a court case in which this Company is interested, to the effect that the Company was misleading the public by advertising a deposit at Hongkong which did not exist.

A most gratifying feature in the Report is the substantial increase in the Reserve and Surplus, or Insurance Fund, which represents the amount held by the Company as reserve liability for the security of policyholders and for distribution of bonuses, the increase in the fund being Tls. 862,820.52. There is nothing further in the Report, printed copies of which you have in your hands, calling for special mention, and this Report will be taken as read, and an opportunity is now given to those who wish to do so to ask questions.

No questions were asked and the resolution was seconded by Mr. C. Stepharius, who said:—

In seconding this motion there is very little I can add to what has already been said by our chairman. I would like to refer, however, to the new business received, amounting to over Tls. 9,000,000 which is a slight increase on the total for the preceding year. In view of the fact that during the past year the Company has opened up new agencies, that we have retired entirely, for the time being at any rate, from Indo-China, owing to the application of the French law regarding Life Insurance Companies, which practically amounts to exclusion, and that there has been little if any improvement in business conditions throughout the East, the result is one on which we may congratulate ourselves and our agents. With only one exception every agency of the Company has shown an increase in business during the past year, showing either closer application to business or a more ready acknowledgement by the insuring public of the Company's claims to their patronage. As a matter of fact the result is due to a combination of both.

The following resolutions were then put to the meeting:—

Moved by Mr. McLeod, seconded by Mr. Stepharius: That the Directors' Report and Statement of Accounts for the year ending 31st March, 1909, as submitted to this meeting be and the same is hereby accepted and passed.

Moved by Mr. McLeod, seconded by Mr. Wattie: That a dividend to shareholders be, and the same is hereby declared, at the rate of Tls. 1 per share, payably half-yearly on the first days of July and January next.

Moved by Mr. Bell, seconded by Mr. Mooser: That Messrs. G. H. and N. Thomson, Chartered Accountants, be and they are hereby appointed auditors for the ensuing year.

Moved by Mr. Stepharius, seconded by Mr. Wattie: That the retiring director, Mr. Alexander McLeod, be and he is hereby re-elected a Director of the Company.

Moved by Mr. MacLeod, seconded by Mr. Wattie: That Messrs. J. H. McMichael and C. R. Burkill, both of Shanghai, be and they are hereby elected Directors of the Company, the latter representing the Company's policyholders, being himself in the Company for the amount required by the Company's Deed of Settlement.

Mr. MacLeod explained that they had brought forward this resolution on account of the very great increase in the Company's business during the last few years. It had been felt by the Directors that the board would be strengthened by the addition of one or two more Directors, and that was the reason why they brought this resolution before them for their approval. He thought that it was absolutely in the interests of the Company that it should be carried.

Mr. Wattie seconded, and the resolution was carried.

The Chairman said he had very great pleasure in moving that a vote of thanks be tendered to the district managers, agents, medical examiners, and head office staff of the Company to whose united efforts was due the very satisfactory statement of the company's affairs submitted to the meeting.

Mr. Stepharius expressed pleasure in seconding, and the motion was carried.

On behalf of the agents and managers Mr. Hughes said that the vote of thanks was well deserved. As Mr. Stepharius had pointed out in spite of adverse conditions every agency but one had shown an increase of the business in force, which they thought was due to the work of their local managers and agents. In regard to their medical directors it was a matter of general knowledge that the Company was as efficiently served in this respect as any company could be. In this connection they had only recently welcomed back from a trip home Dr. Balean who since going away had secured two things, one being a wife and the other the attainment of a very high degree in his profession, namely, that of Fellow of the Royal College of Surgeons. This degree was not an honorary one, but it was acquired by passing a very severe examination. In regard to their medical examiners it was the practice of the company to employ only those doctors who could produce satisfactory medical certificates, and he thought that it was due to their great care in selecting their medical examiners that the rate of mortality experienced during the past year had been well within their calculation. In regard to the staff which might be described as the heart of the organization, it had been the policy of the Company in recent years as the importance of the work at the Head Office increased, to bring out men from home who had had specialized training in the various branches to which they had been allotted, and who had received that training in the offices of some of the larger home companies.

Mr. George Mooser also returned thanks and in doing so wished to correct a statement made some time ago that his brother and himself were leaving the service of the Company. He desired to state that they had just signed a long term contract for ten years which disposed of that statement. He then alluded in flattering terms to the Directors, and welcomed warmly Mr. MacLeod to the board.

Mr. MacLeod returned thanks and the meeting terminated.

WEEKS & COMPANY, LTD.—The net profit for the year ended February 28th, 1909, including $5,731.47 brought forward from last account, after paying all charges, Directors' and Auditors' Fees, making allowance for Bad and Doubtful Debts, depreciation on Fixtures and Furniture, amounts to $62,967.91. From this, an interim dividend amounting to $16,000.00 was paid on December 14, 1908, leaving $46,967.91 now to be dealt with, and the Directors recommend this should be disposed of as follows:

To payment of a final dividend of 6 per cent per annum (making 10 per cent for the year)........	$24,000.00
Place to Reserve (which will bring this fund to $40,000.00)........	14,452.22
Carry forward to New Account...	8,515.69
	$46,967.91

THE LANADRON RUBBER ESTATES, LTD.—This company pays a dividend of 10% out of its profits, places £3,000 in the reserve and carries forward £2,550.

BANQUE DE L'INDO-CHINE.—This institution paid a dividend of f.50 compared with f. 47.50 for the previous year.

MESSRS. A. S. WATSON & CO., LTD.—The total profits available for appropriation for the year amounted to $43,187, of which $1,983 was written off rolling stock, $15,000 placed in the reserve fund, a dividend of 8% paid, and the balance of $2,204 carried forward.

THE TOKYO RAILWAY COMPANY.—At the half yearly meeting held recently the following report and distribution of profits were adopted and effected respectively:

	Yen.
Net gains......................	1,296,060
Brought from last balance.......	198,421
Total....................	1,404,481

To reserve	64,803
Special reserve	116,197
Bonus	35,000
Dividend to shareholders (5.4% per annum, viz.: 1.25 yen per old share and 0.67 yen per new share)	1,174,500
Carried to next term	19,981

JAPAN BREWING COMPANY.—This company has declared a dividend of 12% per annum for the half year term.

THE AMOY DOCK COMPANY, LTD.—The following are the accounts of the company submitted for the year:

The working account shows a profit of	$11,875.17
Add credit balance from 1907	1,214.91
	$13,090.08

which it is proposed to deal with as under:

Write off Amoy Dock	$ 522.02
Write off plant and machinery	912.67
Commission to manager	1,187.52
General managers and consulting committee	800.00
Transfer to repairs and renewals account	4,000.00
Dividend at 50 cents per share	5,000.00
Carry forward	667.87
	$13,090.08

THE INDO-CHINA STEAM NAVIGATION COMPANY, LTD.—£10,000 has been transferred from the Reserve Fund and £18,000 from the Underwriting Account which will then stand at £148,-891, and £55,358 has been written off for depreciation. The balance of £15,162 has been carried forward.

THE SHANGHAI MERCURY, LTD.—The profit and loss account for the year ended April 30 states that after paying an interim dividend of 4 per cent. in December last, writing off Tls. 3,338 for depreciation, etc., writing off the remaining Tls. 5,000 of the good will, placing Tls. 3,000 to reserve for bad and doubtful debts, and providing for directors' and auditors' fees, the balance to credit of this account amounts to Tls. 7,353.74, out of which the directors propose to pay a final dividend of 6 per cent., making 10 per cent. for the year, absorbing Tls. 6,300 and to carry forward the balance of Tls. 1,053.74.

NETHERLANDS-INDIA COMMERCIAL BANK.—Advices have been received that this institution has declared a dividend of 10% for the year ended December 31st, 1908.

MESSRS. LANE, CRAWFORD & CO., LTD.—This company has declared a dividend at the rate of 10% per annum and a balance of $70,000 was carried forward.

EASTERN EXTENSION, AUSTRALASIA AND CHINA TELEGRAPH CO., LTD.—This company paid a final dividend of 2s. 6d. a share making a total dividend of 5%. In addition to this a bonus of 2% was directed paid making in all 7% for the year 1908.

THE CHINA IMPORT AND EXPORT LUMBER COMPANY, LTD.—After writing off depreciation the balance of Tls. 1,696 was carried forward.

YOKOHAMA FIRE INSURANCE COMPANY.—At the recent yearly annual meeting this company declared a dividend equal to 12% per annum.

TOKYO ELECTRIC LIGHT COMPANY.—At the half-yearly meeting a dividend of 12% per annum was declared for the term.

THE TOKYO STOCK EXCHANGE.—The directors announce that this organization is in a position to pay a dividend of 15% for the term.

STRAITS TRADING CO., LTD.—The directors report for the half year ended March 31st that after writing off depreciation and making provision for bad and doubtful debts, the net profits amount to $532,360.64, which, with the balance of $89,266.62 brought forward from last account, makes a total of $621,627.26 available at March 31, 1909, and recommended:

1. That a dividend of $1 and a bonus of 50 cents per share be paid to Shareholders, absorbing $450,000.
2. That $50,000 be added to the Reserve Fund which will then stand at $1,300,000.
3. That $25,000 be transferred to Employees' Bonus Account.
4. That the balance of $96,627.26 be carried forward to a new account.

THE PEKING SYNDICATE, LTD.—The net profit for the year ended June 30th was £138,128 which amount was carried forward.

THE SOUTH MANCHURIA RAILWAY COMPANY.—The report of the Railway for the last half-year is as follows:—

RECEIPTS.	Yen.
Railway income	8,164,391
Shipping income	72,489
Mining income	1,380,119
Harbour income	701,033
Local income	134,444
Hotel income	72,718
Electric income	131,146
	10,656,340

DISBURSEMENTS.	Yen.
Railway expenses	2,573,818
Shipping expenses	164,646
Mining expenses	859,139
Harbour expenses	518,470
Local expenses	180,648
Hotel expenses	79,195
Electric expenses	125,231
Losses	244,717
General expenses	633,690
Interest on debentures	1,822,427
Debenture reserve	2,112,570
	9,314,551

The net profits of the railway and mining departments, *yen* 5,590,573 and *yen* 520,980, are more than double those of the corresponding period of the preceding year, which were *yen* 2,331,293 and *yen* 254,190, respectively. The debenture reserve and the interest on debentures amount to *yen* 2,112,570 and *yen* 1,822,427, against *yen* 58,500 and *yen* 970,000 in the preceding half-year respectively. It will therefore be seen that the net profit, *yen* 1,341,789, is in the highest degree gratifying.

In the preceding six months the total receipts and disbursements were *yen* 6,959,342 and *yen* 6,187,548 respectively, and the debenture reserve was only *yen* 134,500. The principal cause of the large earnings during the past half-year has been the heavy transportation of beans and beancake.

The quantity of these commodities transported amounts to over 672,000 tons, an increase of 420,000 tons as compared with the preceding half year.

The decrease of *yen* 209,000 in passenger receipts is due in part to an amendment of the fares in June, 1908, and in part to a decrease in the number of long distance passengers.

KEIHLIN ELECTRIC RAILWAY COMPANY.—The following accounts were submitted and recommendations of directors adopted at the regular half yearly meeting:

	Yen.
Net gains	95,193
Brought from last balance	12,545
	107,738
To reserve	5,000
Bonds	5,000
Dividend (6% per annum, viz., 1.50 yen per old share and 37½ yen per new share)	95,625
Carried forward	2,113

THE YOKOHAMA RAILWAY COMPANY.—For the half-year ended March 31st a dividend of 5% per annum was declared.

THE BELAT MINING COMPANY, LTD.—This company has declared a dividend of 12% for the year.

THE TEKKA, LTD.—This company has declared an interim dividend of 6d. a share.

TEIKOKU MARINE INSURANCE CO.—The accounts and distribution of profits are as follows:

Net gains	307,091
Legal reserve	20,000
Special reserve	100,000
Dividend (12% per annum)	90,000
Bonus	15,000
Carried to next term	82,091

ANGLO-JAPANESE BANK.—The balance of £10,900 to the credit of profit and loss for the year was carried forward to next account.

THE KONINKLIJKE MAATSCHAPPIJ TOT EXPLOITATIE VAN PETROLEUM CRONNEN.—This company pays a dividend of 28%.

THE LABU (F. M. S.) RUBBER COMPANY, LTD.—This company has declared a final dividend of 4% making a total of 7% for the year.

THE BALGOWIE RUBBER COMPANY, LTD.—This company has paid a final dividend of 12.5% making 25% for the year.

THE JAPAN PAINT COMPANY.—The following accounts were adopted and distribution of profits made for the half-year:

	Yen.
Net gains	55,946
Brought from last balance	7,387
Total	63,333
Legal reserve	2,800
Redemption fund	10,000
Bonus	2,800
Dividend (7 per cent)	37,500
Carried forward	10,233

H. PRICE & CO., LTD.—This company paid a dividend of 8% for the year.

NISSHIN STEAMSHIP COMPANY.—The following accounts submitted were approved and distribution made of profits as follows:

	Yen.
Brought from previous term	72,54
Net gains for the term	1005,73
Total	107,827
Legal reserve	5,028
Dividend (25% per annum)	101,250
Carried to next account	1,549

THE MANILA BUILDING AND LOAN ASSOCIATION.—At the fifth annual meeting of this association the net earnings were such as to warrant the directors declaring a dividend of 20%.

HONGKONG AND SHANGHAI BANKING CORPORATION.—According to latest advices the Bank dividend for the half year ending June 30, 1909, will probably be £2 per share, $750,000.00 will be added to the silver reserve and $2,000,000.-00 carried forward to the next half year.

PHILIPPINE GOLD OUTPUT FOR JUNE

Paracale Gold Dredging Company, 655 ounces.

Benguet Consolidated Gold Mining Company, 126 ounces and 234 pounds of cyanide mat.

F. M. S. TIN OUTPUT FOR MAY

	PICULS.
Belat	640
Bruang	166
Bruseh	240
Gopeng	740
Kanaboi	363
Kinta	450
Kledang	302
Kuantan	107
Lahat	792
New Gopeng	135
Pahang Consolidated	1,700
Pengkalen	450
Pusing Lama	698
Rambutan	325
Redhills	970
Royal Johore	87
Salak South	100
Sempam	60
Serendah	395
Sipiau	129
Tekka	570
Tronoh	2,861

FAR EASTERN RAILWAY NEWS

The Philippine Railway Co.—This company has now in operation 60 miles of line in Cebu and 44 miles on the Island of Panay. The Cebu line is practically complete and connects Danao and Argao the terminal points, and the Panay line which is to connect Iloilo and Capiz will be 72 miles in length when completed, as provided in the concession. There are 22 stations on the Cebu line, 20 of which are constructed of reinforced cement and 10 stations completed on the Panay line of the same character. Four mixed trains run daily each way giving an excellent passenger and fast freight service. The locomotives used were furnished by the Baldwin Locomotive Company and are of three types, 50 ton for heavy construction work and ballasting, and 35 ton and 30 ton for mixed train service. Two small German locomotives are used for switch engines. The track is narrow gauge, and with the exception of 20 miles on Cebu and 20 miles on Panay 70 pound steel supplied by the U. S. Steel Product and Export Company has been used. Hardwood of the First Group was used for ties and six inches of ballast were put under the tie as a standard, but owing to settling in the mud many instances are noted where 12 inches of ballast were tamped. The telegraph lines are strung with No. 10 copper wire with "Selector" telephones for dispatching and the stations are equipped with train order signals. The road is operated where complete with the dispatcher's block system. The passenger coaches have a steel underframe and are equipped with complete airbrakes and signals. The first class and parlor coaches are finished in teak and the second class in sheathed yellow pine. The freight equipment comprises 10 and 20 ton steel frame cars convertible from flat to box, also 40 ton wooden construction flats and 30 ton wooden ballast cars. All these cars are equipped with conductor's air, automatic cuplers and air brakes.

The maximum grade on these lines is one per cent. and the maximum curvature six per cent. The width of embankment is 14 feet at shoulder line with sufficient expansion both vertical and horizontal allowed so that after two rainy seasons the embankment will conform to the 14 foot standard. The bridges are constructed of steel and reinforced cement with reinforced cement piles.

Storehouses, machine shops, woodworking shops, power houses, coach sheds, freight and office buildings, round houses, lumber sheds and turntables have been practically completed, all being built of reinforced concrete.

Work is progressing favorably on the Panay line from both ends. Previous to the rainy season construction was pushed in the lowlands and operations are practically confined to the cuts, etc., during the present season.

Vice-President Poland of this company is very active in encouraging agriculture in the districts traversed by the company lines especially in the culture of tobacco and maguey. In this work he has the co-operation of the Philippine Agricultural Bureau. During the year he distributed 350,000 maguey plants furnished by the Bureau among the native farmers and has gone to great pains to instruct them in the best methods of planting, cultivating and harvesting the product so as to obtain the best results. A maguey stripping machine loaned by the Agricultural Bureau is installed on a flat car and operated free of charge by the company at points where the maguey is being cultivated. This year over 2,000,000 plants will be distributed. This work is already giving results and the farmers are greatly interested for the reason that the returns from maguey are greater than from any crop heretofore realized, while the inducement to produce the best quality is found in the better market price already realized by those who have followed Mr. Poland's instructions. A corps of men are engaged in distributing these plants and instructing the farmers at the expense of the company and it is believed that in Cebu alone the annual export of maguey will reach into the millions in a few years. A similar campaign is being instituted with regard to tobacco in both Cebu and Panay.

Manila Railway Company Construction.—This system, including an extension from Camp One to Baguio recently arranged for, when completed will mean a mileage of about 810 miles. The Northern Section will consist of about 350 miles, and what is designated as the Southern Section, 465 miles. The Northern Section is being built without any Government guarantee, but provision has been made for the guarantee of interest on bonds as regards the Southern Section. When the whole system is completed a line of railway will run from one end of the island of Luzon to the other. The construction of the extensions is progressing rapidly and the territory traversed has been greatly benefited.

Yuet-Han Railway Supplies.—The Nippon Yusen Kaisha and the Japanese Bank are reported interested in the formation of a company to have for its purpose the supplying of railway materials for the Yuet-Han Railway.

Peking-Hankow Railway.—This company proposes adding 200 carriages to its rolling stock and to equip the principal points along the line with hotels, etc., designed for the comfort of travelers. Advices from Peking are to the effect that the gross receipts for the year exceeded previous terms by a million taels.

Hunan and Hupeh Railway Loan.—A loan has been arranged by Chang Chih-tung with the German, French, and British Banks for the loan of £5,500,000 to be utilized for the redemption of £500,000 in bonds sold the Belgian Syndicate by the American company; £2,500,000 to be spent on the section running through Hupeh and Hunan, and the balance to be expended in the construction of a line from I-chang to Kwang-shui on the Peking-Hankow and another line connecting Ching-men with Hankow. The construction will be under Chinese supervision and the auditing under the direction of the banks interested. The price paid to China on the bonds was 95.

Antung-Mukden Reconstruction. — The widening of this line to a standard gauge, which has been under consideration since the signing of the Treaty of Portsmouth, has been meeting with some discouragement from the Chinese Government. The Japanese have been waiting for action on the report of the joint Commission of Investigation which completed its labors in April last. Nothing definite has been heard from Peking, and unless some early action is taken soon the work of construction will have to be postponed until next year.

Yalu Railway Bridge.—The construction of this large bridge is reported to have begun under the direction of the Railway Administration of the Residency General last month.

Refrigerator Cars for Japanese Railways.—There is being constructed at the Shimbashi Railway Works a number of refrigerating cars which will be utilized by the Railway Bureau on its different lines bringing the number operated up to 20. Ten of these cars were recently delivered. Their average capacity is from seven to eight tons.

Grain Elevators of South Manchuria Railway.—The construction of elevators on the wharves at Dairen having a capacity of 60,000 tons is under consideration by the railway authorities. Later it is expected that a system of elevators will be installed by the company along its lines for the purpose of accommodating the bean trade.

South Manchuria Railway Hospital.—The building occupied by the Yamato Hotel will be utilized as a railway hospital when the former management enters into its new headquarters. It is the purpose of the company to provide accommodation for over 200 patients.

The Kiangsu Railway Opening.—The first section of the Shanghai Hangchow-Ningpo Railway, which extends from Shanghai to Feng-ch'ing, a distance of about 38 miles, was opened to traffic on May 30th. This line was built under the direction of Mr. Chin, Engineer-in-Chief, with H. E. Jeme Tien-yow, now in charge of the Peking-Kalgan R. R. as consulting engineer. The preliminary survey of the line was made in the winter of 1907 There are ten stations and 48 steel bridges on this section. The longest bridges have spans of 440 feet, 400 feet, and 200 feet respectively. The average cost of construction was £7,000 per mile. The locomotives were supplied by the American Locomotive Company and the coaches are of American manufacture. The sleepers were supplied by the Japanese. Green Island Cement was used in construction and the steel supplied by the Hangyang Iron Works.

The Peninsular Railway.—The scheme to connect Singapore with Bangkok by rail through British territory, or territory within the British sphere of influence, is expected to be effected within the next few years. The line from Singapore for a distance of 196 miles in this direction will be completed by the end of 1910 which will leave but 150 miles to make connection with the Siamese terminus. It is proposed to spend the £4,000,000 loan provided for in the Anglo-Siamese Treaty to continue the line from Bangkok to the border at Kelantan. Then there is the project to ultimately connect the Burmese railways with this system.

The Hongkong-Canton Railway.—On June 11th a resolution was adopted by the Legislative Council of Hongkong appropriating the sum of $3,280 663 for the purpose of carrying on the construction work of the British Section for the year 1909 It came out in the discussion over the resolution that the tunnel has cost $1,250,000 more than the estimated outlay. It is anticipated that the line will be open to traffic next year. The work on bricklining the tunnel is being pushed as well as on the reclamation.

Peking-Lake Baikal Railway.—The project to connect Mysovaya, on the shore of Lake Baikal and a point on the Trans-Siberian Railway via Kiatcha, with Kulung, the end of the extension of the Peking-Kalgan line, is meeting with strong support at Peking.

Japanese Railways.—The rolling stock of the Japanese railways under direction of the Railway Board is represented by 32,705 freight cars and 67 private cars.

Ise Light Railway Company.—This company has been organized with a capital of 22,000 yen for the purpose of connecting Otobe and Shirako by way of Isshinden, a distance of 10 miles, with a light railway. It is expected completed within two years.

Kosaka-Odate Railway.—This line, which is 15 miles in length, was finished and opened to traffic June 15th.

The Sunning Railway.—The Kun-yik Taushan section of the Sunning Railway, covering a distance of 40 miles completed, and 43 miles in all, was opened for traffic last month. This section took two years to construct. The first section of the Sunning Railway connecting Sunning City with Kun-yik, a distance of 15 miles, was opened to traffic about a year ago. The line cost about $33,000 a mile and, according to reports, is earning about $800 a day. There are nine locomotives in operation, six being American and supplied by the Baldwin Locomotive Company and two of German make. Two of the American locomotives are of 60 tons, three of 65 tons, and one of 40 tons. One of the German locomotives is of 40 tons and the other two of 25 tons. It is a standard gauge line laid with 60-pound steel supplied from Germany. There are eight first class passenger cars of corridor type supplied by America with ten box and many flat cars. It is proposed to connect Kun-yik and Kong-

moon, a distance of 30 miles. Mr. Chin Gee Hee is president of the line and responsible for the line surveyed, constructed, financed, and operated by Chinese. President Hee got his experience in America where he lived for over 43 years. The occasion of the opening was celebrated by an excursion over the 40 miles open, to which foreign and Chinese representatives of every department of industry were invited.

RUSSO-CHINESE RAILWAY AGREEMENT.—The recent agreement concluded between the Russian and Chinese representatives regarding the Railway Area follows:

(1) The recognition of the suzerainty of China and of the validity of the Chinese Eastern Railway Agreement.

(2) Equal treatment for Chinese and foreigners alike.

(3) The organization of municipal councils and district assemblies on stated conditions.

(4) The exercise of absolute control by the Chinese Eastern Railway over the station compounds, workshops, etc.

PEKING-KALGAN LOCOMOTIVES.—The three 100-ton Shay Locomotives sold to the management of the Peking-Kalgan Railway by Messrs. Shewan Tomes of Tientsin are supported by a three bogie truck, all wheels being drivers propelled by flexible shafts. They are designed to climb grades of 1 in 17 and all the weight rests on the drivers. The hauling capacity exclusive of weight of engine and tender is: on Level, 4,820; on grades, 1 in 100, 1,315; 1 in 50, 730; 1 in 25, 257. These locomotives will be delivered in November.

IMPERIAL JAPANESE RAILWAYS.—The report on the railways reproduced from *Japan Financial and Economic Monthly* is as follows:

"During April, the average traffic mileage was 4,543 miles (an increase of 95 miles compared with figures of the previous year), and the number of passengers is 12,344,567 (an increase of 2,011,849), and the number of freight tons is 1,971,933 tons (an increase of 56,110 tons), and the number of passenger receipts was 4,567,225 *yen* (an increase of 141,104 *yen*) and the freight receipts amounted to 3,160 422 *yen* which shows an increase of 141,258 *yen* compared with the corresponding figures of the previous year. The total receipts amounted to 7,727,647 *yen* which is an increase of 282,362 *yen* over the figures of the previous year. The average daily receipt is 257,588 *yen*, and the receipt per month, per mile, is 1,404 *yen*, while that per mile, a day, is 46 *yen*, 80 *sen*. With regard to the result of business for the month of May, there is a certain amount of increase. The average traffic mileage was 4,543 miles, which is an increase of 86 miles compared with corresponding figures of the previous year. The number of passengers was 4,820,611, which shows an increase of 1,117,572 and the amount of freight is 709,871 tons (an increase of 69,111 tons), while passenger receipts were 1,475,914 *yen* (an increase oj 38,807 *yen*), and freight receipts were 1,116,607 *yen* (an increase of 102,889). The total receipts were 2,592,521 *yen* showing an increase of 141,696 *yen*."

The sum of yen 7,020,000 has been appropriated for the fiscal year for railway improvement.

TRANS-BAIKAL RAILWAYS.—The report as published in *Trans-Baikal News* places the receipts of this system for the year 1908 at $4,892,500 and the expenditures $12,875,000.

SLEEPING CARS FOR KYUSHU RAILWAY.—This company has put into commission one large bogie sleeping car, a dining car, and a special car.

TSINGTAO-TSINAN RAILWAY.—The following note was transmitted to the Peking Government by Berlin through the German minister in regard to the proposal of the Peking government to redeem the railway·

"(1) As China has undertaken to complete a line from Teh Chow to Chengting and one from Yenchow or another point on the Tientsin-Poukou branch line, *via* Tsining Chow to Kaifeng before the end of 1922, and that in the event of her wanting a foreign loan for the purpose of these railways she will first consult with the German and Chinese Corporation in the matter and engage a German Engineer, the Government wishes to make it clear that it is willing to assign the rights of constructing the railway from Kiaochow to Ichow and the one in the West of Shangtung to China and allow the Chinese Government to build the same under the supervision of the Tientsin-Poukou Railway Company. As to the Kiaochow-Ichow Railway the Chinese Government should be consulted as to whether it would not be more advisable to connect the same with the trunk line at Kaomih instead of Kiaochow.

"(2) It should be clearly stipulated that the railway from Kiaochow to Ichow must be completed on or before January 1, 1915, and considered as a Government Railway, and that in the event of China wanting to raise a foreign loan to construct the same she must let the German and Chinese Corporation have the option.

"(3) Germany shall retain the right to work all the mines within a radius of thirty miles from the Kiaochow-Ichow Railway and the one from Tsinan to the west of Shantung as provided by the Treaty of Kiaochow."

DOUBLING SOUTH MANCHURIA RAILWAY LINES.—The doubling of the line for four miles between Cho-shui-tz and Nan-kwan-ling was completed last month.

RAILWAYS OF INDO-CHINE.—The following excerpt is taken from the report of Consul Conner of Saigon.

"The lines already constructed radiate from Hanoi and Saigon, the capitals of Tong King and Cochin China, respectively, with a partially constructed line which will eventually join these centres, passing through and connecting the isolated coastal ports of Annam. From this main trunk various short branches have been built and good many more are in contemplation. In Cochin China the most important of these is the one connecting Saigon and Mytho. Another, which is on paper only, reaches up from Saigon through Pnom Penh, the capital of Cambodia, to Battambang, on the Siamese frontier, and, it is assumed, will be continued eventually to Bangkok. Another projected line, starting from the coast at Quang-Tri, crosses the mountain range at the pass of Ai-Lao, at an elevation of only 676 ft., and strikes into the interior of Laos at a point on the Mekong, or Cambodia River, called Savanaket. The primary object of the trunk line from Saigon to Hanoi seems to be that of military defence. The total mileage of the roads in operation is 819.92. There are in addition 20.42 miles of light railways and steam tramways."

REDUCTION OF LIKIN ON SHANGHAI-NANKING R. R.—Peking has authorized a reduction of from 20% to 50% on likin levied on merchandise shipped over this line.

MUKDEN RAILWAY HOTEL.—It is the purpose of the railway authorities to erect a two-story station building on the site chosen and will set aside one-half of the building for an excellently appointed hotel.

SINGAPORE-KRANJI RAILWAY.—The report for the year 1908 shows capital invested to the amount of $5,037,109 and a falling off in receipts compared with the previous year of $8,594. During the year a station was erected at the 12th mile with a loop line, and the work on the Johore Straits Wagon Ferry has progressed favorably. The dredging was completed and 210 feet of quay wall finished.

TESTS OF SANTA MESA ROPE

The following is the report of the Philippine Forestry Bureau on Santa Mesa rope:

"Three specimens of rope were submitted for testing in June, 1909, by Mr. Johnson, of Johnson and Pickett, Santa Mesa Rope Works, Manila. They were of the sizes commercially known as 2 in., 3½ in., and 5 in.

"The following table of sizes, number of strands, threads per strand, etc., will serve in lieu of detailed description of the different ropes tested:

Sizes Commercial.	Number of strands.	Number of threads per strand.	Number threads in core.	Weight per 100 ft.	Amount of oil per picul (137.5 lbs.)
2″	3	10	No core	12.7	1.5 gal.
3½″	4	32	8	41.7	1 gal.
5″	4	45	10	80.6	1.5 gal.

"NOTE:—Figures in last column designate amount of oil added to picul (137 5 lbs.) of air-dried hemp.

"Three tests were made of each size, except the 2″ rope. This was tried first with the hangman's noose around an iron bar with a groove of the exact width of the diameter of the rope and afterwards with the rope held between flat clamps. As it was found that the rope always broke in the knot, and at a tension somewhat below that at which it broke in the clamps, the latter figure is the one given in the results of the tests. It might be stated here that the lowest breaking strain of the 2″ rope as tried with the hangma 's knot was somewhat over 3,000 lbs.

"The 3½″ rope and 5″ rope were held between grooved clamps, deeply cross-hatched on the clamping surface, such as are used for testing round and polygonal metal bars, and the 2″, as stated above, in similar flat clamps. The two larger sizes were deformed very little by the pressure of the grooved clamps and the 2″ rope was compressed to something between ⅔ and ½ its original diameter by the flat clamps. All specimens measured from 1′ to 1′ 6″ between clamps. The clamps are six inches long. There was very little slipping through the clamps.

RESULTS.

2″ Rope, (flat clamps.)

Test No.	Breaking load in lbs.	Kind of rupture.
1	4,000	1 strand at edge of clamp.
2	4,050	1 strand at edge of clamp.
3	4,060	1 strand at edge of clamp.
Average	4,037	

3½″ Rope, (grooved clamps.)

Test No.	Breaking load in lbs.	Kind of rupture.
1	16,000	1 strand broke, two damaged, 4th strand whole.
2	16,250	2 strands snapped; other two slightly injured.
3	16,670	2 strands snapped, other two partly broken.
Average	16,273	

5″ Rope. (grooved clamps.)

Test No.	Breaking load in lbs.	Kind of rupture.
1	22,960	1 strand snapped, 2 injured, 1 whole.
2	23,775	2 strands snapped, 1 damage, 1 whole.
3	24,440	2 strands snapped, 2 badly damaged.
Average	23,728	

(Sgd.) EDWIN F. SCHNEIDER
Manager, Timber Testing Laboratory, Bureau of Forestry.

TRADE OF HONGKONG

The report of the Harbor Master, submitted to the Legislative Council of Hongkong, shows a falling of tonnage, but an increase in the number of ships calling at that port for the year 1908. There were 532,078 ships representing 34,614,335 tons, an increase of 24,478 ships and a decrease of 1,413,069 tons. Of the ships 289,101 were British. Flour imports decreased from 147,000 to 91,000 tons owing to the direct shipments made to other ports that were formerly made from Hongkong as a distributing center. The total imports were represented by 4,170,000 tons, a decrease of 4.4% compared with 1907. There was also a decrease of exports compared with the previous year from 2,354,000 to 2,103,000, and transit cargo declined slightly. Sugar imported for the year, amounted to 250,500 tons against 293,500 for the previous term. Of this 178,791 tons came from Java and 50,492 tons from the Philippines. The total revenue of the port for the year was $357,768, and the expenditures 163,597.

CONTRACTING NEWS

Bids Opened for Six Steam Launches for the Quartermaster's Department, Division of the Philippines, on July 15th, follow:

Riley, Hargreaves & Co., Singapore, one launch both sizes each $32,560 gold, two of both sizes; two launches both sizes $63,150 each size; three launches both sizes $93,500 each size.

Hongkong, Whampoa Dock Company, Findlay & Co., agents: Each launch 85 feet in length $17,973 gold each; two launches $35,748; three launches $53,494; one 60-foot launch $11,056; two launches $22,071; three launches $32,947.

Shanghai Dock and Engineering Company, one launch 90 feet, $15,600 gold; two launches $31,200; three launches $46,800; one launch 65 feet, $9,300; two launches $18,600; three launches $27,900.

Castle Bros.-Wolf & Sons, representing Taikoo Dock Yard and Engineering Company of Hongkong, each of two launches 90 feet, $19,120 gold; each of three launches 90 feet, $19,000; each of two launches 60 feet, $10,640; each of three launches 60 feet, $10,575.

Rope bids for 300,000 pounds of rope for the Quartermaster's Department, Division of the Philippines, were opened July 12th as follows:

C. E. Helvie, delivery in San Francisco, 6 and 9 thread rope .1088 U. S. Currency per pound; 12 thread 1037; 1½ to 3 in. 0984.

H. R. Cooper representing Santa Mesa Rope Works C tread up to including 2 in. 15 centavos a pound; 2½ in. to 8 in. .146 centavos delivered in Manila.

William H. Anderson & Co. for all sizes, .0761 U. S. Currency delivered in Manila, free entry.

H. L. Heath, delivery in Manila Bay, all sizes, .1610 Philippines currency per pound.

Lambert, Springer & Co. .1424 Philippines currency per pound for all sizes, delivered ship's side Manila, free entry.

Bids for the repair of the Transport Warren were opened at the Chief Quartermaster's Office, Division of the Philippines, on July 10th as follows:

Shanghai Dock and Engineering Company $69,240 gold, to be completed 12 weeks after delivery of the vessel at Shanghai; New Engineering and Shipbuilding Works, Ltd., of Shanghai, $159,481 gold, to be completed in 5½ months; Castle Bros.-Wolf & Sons, representing Taikoo Dock Board and Engineering Company of Hongkong $90,184 gold, to be completed in 8 months; Hongkong and Whampoa Dock Co. $88,366, to be completed in 9 weeks; Tanjong Pagar Dock Board of Singapore $102,500, six months' time. The contract was awarded the Shanghai Dock and Engineering Co.

The contract for the supply of 40,000 barrels of cement to the Philippines Government was awarded Messrs. Smith Bell & Co., representing the Haiphong Dragon Brand of cement. The price was ₱4.16.

Bids for the construction of a laboratory at Los Baños were opened at the Bureau of Public Works, Manila, as follows:

M. B. Zarate, ₱8,780.00; Choy & Company, ₱12,300.00; J. A. Valera, ₱7,954.00.

The contract for the erection of a new steel hose tower at Santa Cruz station, Manila, was awarded the Atlantic Gulf and Pacific Company. The price was ₱9,470.

Bids for the construction of two bridges at Dagupan, P. I., were opened at the Bureau of Public Works, Manila, as follows:

The Atlantic Gulf and Pacific Company, ₱85,450 for the Calmay bridge and ₱39.790 for the Pantal bridge to be completed in 365 days; R. M. Loper bid on part of the work at 15% on cost of labor and materials and wanted 450 days to complete the work.

The contract for the supply of 60,000 tons of coal to the U. S. Army has been awarded the Mitsui, Bussan Kaisha. Their prices were $4.47 shipside and $4.74 on dock.

The contract for the supply of 5,000 gallons of gasoline to the Quartermaster's Department, Division of the Philippines, was awarded the Standard Oil Company. The price was 50 cents a gallon.

The following were the bids submitted for the construction of the six wooden lorchas for the Quartermaster's Department, Division of the Philippines, and opened June 26th: The Hongkong and Whampoa Dock Company, $22,800; Fred Wilson & Co., $28,600; Varadero de Manila, $32,000; Juan Rodriguez, $35,300; Che Chung, $36,500.

There were many tenders submitted for the supply of bridge girders to the Tientsin-Pukow R.R. of whom Messrs. Jardine, Matheson & Co. were the lowest and Messrs. Buchheister next. The prices have not been learned.

Messrs Holden & Brook were the successful bidders for the contract to supply the Shanghai Municipality with a feed water heater. Their price was £116. 18s. and the other bidders were Messrs. Babcock & Wilcox Ltd., £155, and Messrs. J. Wright & Co., £192.

The Shanghai Dock and Engineering Co. has secured the contract for the repair of the Shanghai municipal dredger. The price was Tls. 628.

The Tientsin-Pukow R.R. has advertised for tenders on the supply of 20,000 casks of cement to be delivered at Pukow by August 31st.

The contract for the construction of the Naval Dock at Pearl Harbor has been awarded the San Francisco Bridge Company. The price was $1,760,000.

The Depot Commissary of Manila has advertised for tenders for the supply of 600,000 lbs. Rice; 230,400 lbs. Sugar, granulated; 40,000 lbs. Butter, 1-lb. prints; 1,000 cans Cheese, full cream; 3,600 cans crackers Soda; 1,200 bots. Ginger Ale; 5,400 cans Jam, assorted, lac; 1,000 bots. Oil, olive; 720 bots. Salt, table; 3,600 cakes, Soap, toilet, Glye; 24,000 bots. Water, effvt. These bids will be opened July 26th.

The following tenders were submitted for the construction of light twin screw river steamer for the Chief Quartermaster, Division of the Philippines:

Shanghai Dock and Engineering Company, $29,250 gold; Kwang Shang Lung & Co., $78,500 Mexican currency; New Engineering and Shipbuilding Works, Shanghai, $28,900 gold; Tanjong Pagar Dock Board, Singapore, $35,000 gold; Riley, Hargreaves & Co., Ltd., Singapore, $72,500 Straits Settlement currency, with alternate bid of $77,000 for larger engines giving greater speed; Hongkong and Whampoa Co., $27,713 gold.

Haiho Conservancy Contracts.—The contract for building four small tugs for the conservancy was awarded the Kiangnan Dock Co. of Shanghai the price for the four vessels being Tls. 80,000. There were in all 45 bids submitted out of which 33 bids were thrown out for not complying with specifications and the remaining bids simmered down to the Kiangnan Docks and the New Engineering and Shipbuilding Works, their respective bids being almost equal.

There were 21 bidders for the construction of the 500 c/m dredger ranging from $120,500 to $235,000. The contract was awarded A. F. Smilders of Schiedam, Holland, at £32,650.

Tientsin-Pukow Railroad.—Steel Truss Girders.—Tenders invited for the supply of the following steel truss girders:—Indent 62—4 Spans of deck girders, 100 feet clear span. 3 Spans of through girders, 200 feet clear span.—Indent 63—7 Spans of through girders, 200 feet clear span, or any less quantity.

The above to be executed in accordance with the instructions and to the satisfaction of Messrs. Baker and Hurtzig, of 2 Queen Anne's Mansions, Westminster, from whom full particulars, specifications and drawings can be obtained and without whose certificate no work will be accepted.

The girders to be delivered ex Ship's Slings on the Railway Wharf a Pukow at the sole risk of the contractor and free of all charges except duty, on or before the following dates:—Indent 62—on or before 31st July, 1910.—Indent 63—on or before 30th September, 1910.

Payment will be made in sterling in Shanghai or London at the contractor's option 10 days after the acceptance of each complete indent.

Tenderers must quote in sterling and the names of proposed makers must be stated.

Tenders should be addressed to the Managing Director, Tientsin-Pukow Railway, Southern Section, Nanking, and should be clearly marked on the outside "Tenders for Indents 62 and 63, Steel Truss Girders." They should reach this office on or before Tuesday, 14th September, 1909.

Tenders will be publicly opened at 10 a. m., on Wednesday, September 15th, 1909.

The Managing Director does not bind himself to accept the lowest or any tender.

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*PROPOSALS FOR CONSTRUCTION OF SEA-GOING TOWBOAT:—Headquarters Philippines Division, Office of Chief Quartermaster, Manila, P. I., July 12th, 1909. Sealed proposals, in triplicate, subject to the usual conditions, will be received here until 10:00 a.m., August 30th, 1909, and then opened, for the construction and delivery to this department complete and ready for service, one Sea-going, single screw, Towboat. Blank forms and full information will be furnished upon application to the United States Consular representative at Hongkong, Shanghai and Singapore, and the Chief Quartermaster, Philippines Division, Manila, P. I. Proposals should be enclosed in sealed envelopes, endorsed "Proposals for Towboat, to be opened at 10:00 a.m., August 30th, 1909," and addressed to the Chief Quartermaster, Philippines Division, Manila, P. I.

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*ADVERTISEMENT.—CITY OF MANILA.—OFFICE OF THE MUNICIPAL BOARD.—Manila, P. I., June 17, 1909.—Sealed proposals will be received at this office until 11 o'clock a. m. of the 2nd day of August, 1909, and then publicly opened, for furnishing all the materials, work, and machinery of every sort, and for constructing complete one steam launch in accordance with specifications and to the satisfaction of the City Engineer.

Each bid shall be accompanied by a certified check made payable to the city of Manila or cash in the sum of five hundred (₱500.00) pesos, Philippine currency, as a guaranty that the contractor will within ten (10) days, if awarded the contract, enter into contract with the city of Manila for the faithful performance of all the work herein specified.

A bond or guaranty in favor of the city of Manila, in an amount equal to ten per centum (10%) of the accepted bid, and to the satisfaction of the Municipal Board, will be required for the faithful performance and completion of the contract to the satisfaction of the Engineer by December 31, 1909.

Printed forms for bids, specifications, and all necessary information may be obtained at the office of the Engineer, Manila, P. I., and at the American Consulates at Hongkong, Shanghai, and Singapore.

The right is reserved to reject any or all bids, and to waive any defects. By direction of the Board:—H. L. Fischer, *Secretary.*

**Advertised in the* Far Eastern Review.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, LIGHT, POWER, TELEGRAPHS, TELEPHONES, ETC.

VLADIVOSTOCK ELECTRIC RAILWAY.—Russian capitalists have asked for a concession to install a system in the city to cost in the vicinity of $500,000.

DAIREN-CHEFOO CABLE.—The laying of this cable was completed and tested June 20th and communication was opened the first week of July according to report.

ANTUNG TELEPHONE SERVICE.—The Chinese Government opened a telephone service in Antung last March and at the present time over 50 subscribers are being served.

PEKING PALACE LIGHTED BY ELECTRICITY.—Late advices from Peking announce that the palace of the Empress Dowager is now being served with electric lighting.

TELEGRAPH TO THIBET.—A movement is on foot at Peking to organize a company to connect the principal points in Szechuan and Thibet with the Chinese telegraph system.

PYONGYANG ELECTRIC LIGHT AND POWER COMPANY.—A new company has been formed with a capital of yen 150,000 which has for its purpose the supplying of electric lighting and power to the city.

THE MANILA ELECTRIC RAILWAY AND LIGHT COMPANY.—During the fiscal year 1908 this company carried 10,701,859 passengers at an average rate of 9.9 centavos and at an average cost of 5.3 centavos.

AMIR WANTS ELECTRIC LIGHTING.—The Bangkok press announces that Mr. Bennet representing Messrs. Osler & Co. is on his way to Kabul for the purpose of installing an electric light plant in the Amir's palace.

CANTON ELECTRIC LIGHT PLANT.—It is reported on good authority that the purchase of this valuable property by the Chinese government from the China Light and Power Company has been arranged. The price is said to be $1,300,000.

WIRELESS FOR CHINA.—The American Consul at Tsingtau writes that the Peking government has authorized the purchase of wireless equipment for the installation of stations designed to open up communication between Altai Mountains and Ahsien.

PEKING TELEPHONE SERVICE.—New apparatus has been ordered from America for the purpose of reconstructing the system. About 3,000 will be installed soon and it is expected that the exchange will serve about 10,000 subscribers by the end of the year.

DAIREN ELECTRIC TRAMWAY.—The head offices of the tramway will occupy a new two story building now under construction, about the middle of September. Part of the building will be utilized for a training school for recruits in the service of the company.

MANILA SENDS EXPERT TO EUROPE.—An appropriation of ₱2,500 has been made by the Manila municipal board to pay the expense of a tour of Europe by the City Electrician for the purpose of studying electric lighting and electric railway management.

SOUTH MANCHURIA RAILWAY GAS PLANT.—The materials for the new gas plant at Dairen arrived recently and the work of construction and installation is now in progress. It is the purpose of the company to supply light and heat for cooking purposes.

HYDRO-ELECTRIC AMALGAMATION.—It is announced that the Yokohama Electric Light Company and the Hakone Hydro-Electric Company have joined their interests, the Yokohama company purchasing the Hakone company giving in exchange 24,000 shares of yen 50 stock fully paid up.

SOUTH MANCHURIA'S ELECTRICAL POWER PLANT.—The machinery for this increased installation was received in June at Dalny and it was expected to begin service during July. The present capacity for lighting will be increased from 70 arcs and 12,000 lights to 270 arcs and 20,000 lights as soon as this additional machinery is utilized.

CHICHIBU ELECTRIC POWER.—There is a scheme on foot to utilize the upper waters of the Sumida River in the Saitama prefecture for the generation of electric power. It is estimated that over 6000 h. p. could be developed with a capital of yen 1,500, 000 and might be utilized to operate tramways and electric lighting plants in about six cities in that vicinity.

WIRELESS IN JAPAN.—In reviewing the progress made in the use of wireless the *Japan Mail* says that there are now five wireless stations established in Japan and that ten steamers of the Toyo Kisen Kaisha and the Nippon Yusen Kaisha have been fitted with equipment. A distance of 1500 miles is the extreme of intercommunication but it is expected that in a short time communication may be established between Japan and the Sandwich Islands.

TELEPHONE ON TRAIN IN JAPAN.—The Railway Board has been testing the use of a telephone for reporting accidents on trains to nearest station. A train which left Shimbashi stopped at a certain point near Numazu and the electric experts and operatives quickly arranged the telephone to the nearest telephone wire and reported the accident to the nearest station in a very successful way. The time occupied was only five minutes.

PARACALE LONG DISTANCE TELEPHONE SERVICE.—The mining interests at Paracale expect to install a system in the district and connect it with the Government System at Daet, Camarines, giving direct communication with Manila. The materials necessary, which include about 45 miles of wire and 16 bell telephone boxes with batteries, etc., are expected next month. The distance from Paracale to Daet is about 20 miles. This will put all the different mining properties in direct communication with the capital.

ELECTRIC LIGHTING IN TOKYO.—The report of the electric light company states that at the end of April the number of electric lights was 368,627 in 86,078 families and the total of electric power supply 5,294 horse power in 1,451 houses. Since then there being an increase of 6,000 in light supply and 120 horse power in electric power, the entire supply at present is estimated to be something like 370,000 lights and 5,400 horse power. Compared with the previous term the present figures show an increased income of 260,000 yen in light supply and of 42,000 yen in electric power supply. The rate of increase in net profit is estimated to reach at least 2,550,000 yen in a year thrice the sum in three years. To give the figures of the past three years the sum was 710,000 yen in 1906; 1,150,000 yen in 1907; 1,680,000 yen in 1908 while the present year netted the sum of 1,150,000 yen in only half a year.

PUBLIC WORKS, DOCKS, WHARVES, ETC.

KEELUNG HARBOR WORKS.—This harbor has been dredged to a depth of 30 feet and thirty buoys have been placed to accommodate vessels as large as 1200 tons.

HUNCHUN HARBOR IMPROVEMENTS.—It has been decided at Peking that the Chinese Government will defray the expense of dredging and protecting the harbor at this point.

TANJONG PRIOK IMPROVEMENTS.—Extensive harbor improvements are proposed at this point for the purpose of meeting the increasing demand for better handling and landing facilities.

OSAKA CITY WATERWORKS.—The municipality has authorized a loan of £3,000,000 part of which will be used in completing the present waterwork plans and extending the system.

SAIGON WATER TANKS COLLAPSE.—The investigation into the cause of the collapse of the twin tanks of the waterworks system indicates that faulty plans, material and construction were responsible.

BAGUIO WATERWORKS AND SEWER SYSTEM.—Provision has been made by the Philippine Government for the installation of a modern sewer system and waterworks for this well-known summer resort in Benguet.

CHEFOO BREAKWATER.—The construction of a breakwater at Chefoo and other harbor improvements are being agitated in connection with the construction of the proposed line connecting that port with Tsinanfu.

VLADIVOSTOCK NAVAL DOCKS.—It has been announced that these docks will soon be open to merchant vessels of all nationalities and the announcement is made that the prices will be much less than at other Asiatic ports.

MACASSAR HARBOR FACILITIES. The increasing shipping trade of this Celebes port has made it apparent to the authorities that if the harbor accommodation is to keep pace, a great deal of improvement must be inaugurated at once. The present activity in this direction is insufficient.

MACAO HARBOR IMPROVEMENT.—The proposed deepening and widening of the Macao Harbor to permit of two ocean vessels entering abreast is reported to have been authorized by the Lisbon Government. This work is believed to be the most important contemplated in the history of the colony.

TAKOW HARBOR IMPROVEMENTS.—Two dredgers are at work deepening this important Formosan Harbor and it is expected that in a few months vessels of 1500 tons will be able to enter the harbor with ease. A large sum of money is being spent removing a large isolated rock that for the present prevents vessels over 200 tons making the harbor with safety.

PHILIPPINE PUBLIC WORKS DEFICIENCY BILL.—The Philippine Government has authorized the issue of public works bonds to the amount of $1,500,000 to cover the estimated deficiency in customs receipts incident to the passage of the free trade section of the Payne Bill and to cover shortage of funds available to meet previous public works appropriations.

VLADIVOSTOCK WATERWORKS AND SEWER SYSTEM.—The municipality is negotiating with Messrs. Olof Wijk & Co. of Gothenburg, Sweden, and J. G. White & Co., of London, for the installation of a complete water and sewer system together with an electric light and power plant for the city. It is understood that a loan of 6,000,000 roubles is being arranged at 7% in London.

THE WHANGPOO CONSERVANCY.—The tender Alexandria made a trip through the Old Junk Channel recently on inspection and demonstrated that where there was formerly a sand bar with four or five feet of water, there is now 25 feet with a width of channel of 600 feet. This represents the work towards the accomplishment of the purpose of the conservancy work which was to check the flow of water through the Ship Channel, deepen the Old Junk Channel and ultimately close the former.

THE YANGTSEPOO DOCK.—The formal opening of this new dock by the New Engineering and Shipbuilding Works of Shanghai took place on June 22nd when the C. N. S. Kinling was docked. Work commenced on this dock in May 1908. Its length on the blocks is 452 feet, width of entrance,—bottom 60 feet, coping 70 feet. The depth to floor is 27 feet and depth of water at ordinary springtides on three foot blocks, 19 feet. The entrance is closed by a steel caisson which floats in nine feet of water and is equipped with electrical pumps. The pumping apparatus of the dock comprise two-22 inch centrifugal pumps driven by compound surface-condensing engines with a capacity of 18,000 gallons per minute. The appointments are most modern and further equipment will be added to enable the company to handle any character of work.

SHIPBUILDING, GENERAL MARINE AND FISHERIES

PHILIPPINE SPONGES.—During the year over 30,000 sponges have been shipped out of the islands to Singapore and London.

U. S. TRANSPORTS CALL AT MIIKE.—It has been decided to cut out Nagasaki as a port of call for the transport service and to have the vessels coal at Miike.

SUNGARI RIVER SUBSIDIES.—H. E. Hsi Liang, viceroy of Manchuria, has arranged for a subsidy of Tls. 50,000 for the encouragement of shipping in the Sungari River.

MEXICAN-ORIENTAL LINE.—This line, which has been operating between Mexico and Hongkong and Japanese ports, has decided to include the Philippine ports in its list of ports of call.

ACTING SECRETARY CALDWELL HONORED.—The 25th anniversary of Mr. G. A. Caldwell's continuous service with the Hongkong and Whampoa Dock Company was celebrated this month.

TONGKIN PEARLING INDUSTRY.—These fisheries in the Bay of Along are reported to be in a flourishing condition and are mostly in the hands of Chinese. It is understood that an effort will be made to protect these fisheries from spoliation.

KIANGNAN LAUNCHING.—The steam tug Chutung was launched from the Kiangnan Dock and Engineering Works July 6th. This vessel was constructed by Messrs. Thornycroft & Co. and sent out in sections to the order of the Szechuen S. N. Co.

ROYAL MAIL PACKET LINE.—The Segura which recently arrived at Shanghai inaugurated a new line of steamers connecting England with the Far East. The vessel is 3,000 tons and is fitted up for passenger traffic. Messrs. Jardine, Matheson & Co. are the agents.

PORTUGUESE GUNBOAT LAUNCHED.—The gunboat Macao was launched by the Hongkong and Whampoa Dock Company, July 9th. The boat was built by Messrs. Yarrow and sent out in sections to be assembled by the Dock Company. The gunboat will be used for river service.

CHINESE SHIPBUILDING CONTRACTS.—The Kawasaki and the Mitsui Bishi Shipbuilding and Engineering Works have secured the contract for the construction of two 5,000 ton cruisers respectively from the Chinese Government and the Osaka Iron Foundry will build four smaller vessels.

NEW TRANS-PACIFIC SERVICE.—The first steamer of the Osaka Shosen Kaisha to make connection with the Chicago Milwaukee and Puget Sound Railway at Tacoma sailed this month from Hongkong via Shanghai and Japan ports. An office in connection with this service has already been established at Shanghai.

BONITO FISHERIES.—This year the bonito fishing at Hachijo-jima Miyake-jima and other islands off the coast of Idzu province, is so profitable, says the *Japan Mail*, that it has attracted some 500 fishing vessels, which will make an average profit of *yen* 4,000 during the season. Thus the aggregate amount will be about *yen* 2,000,000.

JOHORE RAILWAY FERRY.—The transportation of trains from the Johore to the Woodlands terminal by ferry was inaugurated recently by the trial of the ferry Ibrahim with satisfactory results. This ferry is 128 feet long, 26 feet 8 in. in width and 6 ft. 6 in. in depth moulded. It is constructed of steel and the rails laid will accommodate seven cars at a time. It is divided into 24 watertight compartments and is propelled by two sets of compound non-condensing engines developing 300 h. p. The ferry is otherwise equipped with all the latest convenience for loading and discharging.

MINES, MINERALS AND THE METAL TRADE

KEROSENE NEAR KOBE.—An oil deposit is reported near Kobe and permission has been granted to sink a well.

SHANTUNG MINES.—It is reported from Peking that the Germans are willing to surrender their rights in the Maoshan mines for 2,000,000 marks.

SOUTH SUMATRA GOLD.—The Siman Company operating in this section reports 210,000 tons of ore available running about 14 dwt. to the ton.

YENTAI COAL FIELDS.—A preliminary reconnaissance is being made of this property, but it will be some time before active mining operations will be initiated.

FUSHUN COAL SHIPMENTS.—Shipments of Fushun coal to Singapore and South China are reported from Dairen. The mines are now producing 2,000 tons of coal daily.

NAGASAKI SUBMARINE COAL BEDS.—A bed of coal said to be of good quality has been discovered by shell divers near Sasebo between the islands of Kurose and Sakito.

JAPAN'S COAL SURPLUS.—The Hokkaido mines have a surplus on hand of over 400,000 tons of coal according to a Japanese paper which also states that this is due to the dullness existing in manufacturing circles.

AUSTRALIAN RAILS TO ENGLAND.—The Dominion Iron and Steel Co. has been active filling an order for 5,000 tons of 85 pound steel rails placed with the company by the Great Northern Railway of Sheffield.

FORMOSAN COAL MINING.—The development of the coal deposits about 12 miles from Keelung is to be expedited by the construction of a railway to the port of Keelung. The demand for coal in the island is said to exceed 200,000 tons.

JAPANESE MINES.—The total value of the output of the mines of Japan last year is reported as 103,167,395 *yen*, a decrease of 3,669,620 *yen* as compared with the preceding year. The applications for mine working during the year numbered 4,663.

PINGYANG COAL MINES.—The result of the investigations made in regard to this property is to the effect that it is a valuable property and the quality of the coal very satisfactory. It is understood that a million yen has been subscribed to develop the field.

KUEICHOW QUICK SILVER MINE.—The Anglo-French Syndicate has asked for an extension of its concession from the Chinese Government to work the valuable deposit of quick silver at this point. The Chinese, however, are making an effort to redeem the property.

JAPANESE COAL.—Japan's output of coal for last year amounted to 14,468,664 tons, 60 per cent. of her mineral products, and 16 collieries produced 200,000 tons. Of these the Miike produced 1,537,684 tons; Ohnoura, 783,673 tons; Tagawa 544,905 tons, and Yubari 495,963 tons.

CHINESE GOVERNMENT CEMENT WORKS AT CANTON.—This enterprise on the part of the government is located on the island of Honan and when completed will have a capacity of 500 barrels daily. The plant and machinery will cost when completed about $500.000. The buildings will be of steel and the machinery of German manufacture. A brick works will be added to the plant.

PARACALE MINING PLANT.—An addition of a 120 h. p. boiler engine and gear for the San Mauricio mine to be used for hoisting purposes arrived at the property from America this month and is being installed. A strike of copper was made in this property represented a two-foot vein running $14 gold and 25% copper. The testing of large areas of placer ground by the Philippine Exploration Company continues.

MASBATE MINES.—The work of development on the different Masbate gold properties in the Philippines has been pressed during the last year and a splendid showing is reported. The Nancy Lode has been uncovered for 200 feet along the vein nearly 60 feet wide and averaging in values $5 to the ton. A cross tunnel is being driven about 175 feet below the upper level. On the Syndicate property comprising 18 lode claims and some placer area is being rapidly developed, sixty men being employed day and night. This company expects to be prepared to install a mill within a year. The miners there are anxious to expose as large a quantity of ore as possible before installing expensive machinery. So far the prospects have exceeded expectations.

FINANCIAL AND MISCELLANEOUS

PHILIPPINE HEMP SHIPMENTS.—Shipments to America for the month of June amounted to 130,000 bales.

TIEHLING FLOUR MILL.—This mill is turning out 400 koku of flour daily and the output is finding ready sale.

HONGKONG AND SHANGHAI BANK STOCK.—During the week ended July 9th this stock sold as high as $1,030.

YOKOHAMA SPECIE BANK.—This institution's new building at Dairen will be ready for occupancy August 1st.

TIENTSIN-PUKOW LOAN.—Telegraphic advices from London announced that the list closed at three-quarters premium.

JAPAN'S TOBACCO MONOPOLY.—The revenue for the year ended March 31st amounted to yen 60,000,000, an increase of yen 7,000,000.

CHINA-MONGOLIAN BANK.—Chinese capitalists are reported to have subscribed Tls. 5,000,000 for the establishment of a bank at Taonanfu.

KIRIN INDUSTRIAL BANK.—South China capitalists are interested in the establishment of a bank at this point with a capital of $5,000,000.

WISE & CO., LTD.—The announcement is made in Manila that Messrs. Wise & Co. Ltd., have taken over the assets and liabilities of Messrs. Holliday, Wise & Co., Ltd.

KOREAN CENTRAL BANK.—This organization is to have a capital of Yen 10,000,000 subscribed by Japanese and Korean capitalists and will have the right to issue notes.

MANILA LAND TAX RATE.—The Philippine Government has fixed the real estate tax rate for the capital at one and one-half per cent., a reduction of half of one per cent.

MANCHURIAN BANK.—H. E. Hsi Liang, Viceroy of Manchuria has petitioned the throne for the issue of Tls. 10,000,000 for the establishment of a bank and other enterprises in the Three Provinces.

MERCANTILE LIFE ASSURANCE COMPANY.—This is the name of a new company organized in Shanghai with a capital of Tls. 3,000,000 and has for its purpose the carrying on of a general assurance business throughout the Far East.

PHILIPPINES SAVINGS BANK.—The total amount deposited at Philippine postal savings banks at the close of business on May 31st was 1,421,069.03. During the month of May 440 new accounts were opened, while 272 were closed.

ILOILO SUGAR SHIPMENTS.—Shipment Steamer Marie by Messrs. Warner Barnes & Co., July 1st, for Moji of 40,000 piculs made a total to that date of 872,523 piculs superior, 8,915 wet, and 18,641 sapanwood. These shipments went to China and America.

HONGKONG HARBOR FINANCES.—The total revenue collected by the Harbour Department during the year was $357,768.52 as against $348,300.10 collected in the previous year, showing an increase of $9,468.42.

The expenditure of the Harbour Department for 1908 was $163,579.54.

INDO-CHINA BUDGET.—The *Journal Officiel* of France publishes a decree fixing the general budget of Indo-China for 1909, in receipts and expenditure, at 34,537,000 piastres, the local budget of Annam at 3,101,466 piastres, the budget of Cambodia at 2,784,000 piastres, and that of Laos at 865,500 piastres.

INTERNATIONAL BANKING CORPORATION BRANCH AT PEKING.—The new branch of this institution was opened at Peking June 24th with Mr. H. T. S. Green as acting manager. It is located temporarily in the same building with the China Mutual Life Insurance Company on Chang-an. It is announced that Manager D. A. Menocal of the Canton Branch will take charge soon relieving Mr. Green who goes to New York as General Manager.

KEIHLIN ELECTRIC RAILWAY LOAN CONCLUDED.—The loan negotiation between the Keihlin Electric Railway and Messrs. Sale Frazer Co. was concluded on Wednesday on the following terms:—Total sum, £200,000 (2 million yen); mortgage, railway and stock; interest, 5.5 per cent. per annum; actual receipt, £91; term of redemption, 10 years after the first 10 years. The contract which was exchanged between the parties on the same day provides that Messrs. Sale Frazer Co. should be represented in the board of directors.

*LONDON, ENGLAND, METAL MARKET

June 1909.

The following are to-night's (June 4) prices ¶ of metals:—

COPPER	£ s. d.		£ s. d.
*Tough cake and Ingot	63 10 0	..	64 00
*Best Selected	64 0 0	..	64 100
*Electrolytic	64 10 0	..	65 00
*Sheets and sheathing	75 0 0	..	—
*Flat bottoms	78 0 0	..	—
STANDARD †Cash	61 2 6	..	61 5 0
STANDARD †Three Months	62 2 6	..	62 5 0
*Copper tubes, seamless per lb.	0 0 9⅜	..	—
*Lake	65 0 0	..	65 10 0

* Less 3½ per cent. † Net.

ALLOYS.			
BRASS: Wire	0 0 6⅝	..	—
,, Tubes (solid drawn)	0 0 7⅞	..	—
,, Sheets	0 0 6⅞	..	—

TIN.			
English ingots, f. o. b.	132 0 0	..	133 0 0
,, bars	133 0 0	..	134 0 0
,, refined	134 0 0	..	135 0 0
Straits... Cash	133 2 6	..	133 5 0
Straits... Three months	134 7 6	..	134 12 6
Australian spot	133 2 6	..	133 12 6
Banka (in Holland) Cash	134 10 0	..	—
Banka (in Holland) Three months	135 2 6	..	—

LEAD.			
Spanish or soft foreign	13 2 6	..	13 5 0
English pig, common	13 5 0	..	13 10 0
,, L. B.	14 0 0	..	—
,, sheet and bar lead	14 10 0	..	—
,, pipe	15 0 0	..	—
,, red	16 0 0	..	—
,, white	18 0 0	..	—
,, patent shot	16 10 0	..	—

SPELTER.			
Silesian ordinary brands	22 0 0	..	22 2 6
,, special brands	22 10 0	..	22 15 0
English Swansea	22 12 6	..	23 2 6
Sheet zinc	24 5 0	..	—

ANTIMONY.			
Antimony	30 0 0	..	32 0 0
,, Crude	13 10 0	..	14 10 0
,, Ore (basis 50%)	7 10 0	..	8 10 0

QUICKSILVER.			
Flasks, 75 lbs. warrants	8 7 6	..	—

MANGANESE. Ore, c.i.f., U. K. ports.	Per unit.		Per unit.*
1st quality, 50 per cent. and upwards	0 0 9	..	—
2nd quality, 47 per cent. to 50 per cent	0 0 8	..	—
3rd quality, 40 per cent. to 47 per cent	0 0 7	..	—

* Unit corresponds to 1 per cent.

ALUMINIUM.	Per ton.		Per ton.
98-99 per cent	60 0 0	..	65 0 0

NICKEL.	Per ton.		Per ton.
98-99 per cent. guaranteed	170 0 0	..	175 0 0

PLATINUM.

Per oz. Troy, 91s. 6d.; nominal and subject to negotiation.

**Mining Journal.*

FAIRBANKS, MORSE & CO.'S NEW CATALOGUE

Catalogue No. 60 Fairbanks, Morse & Co., Chicago, Ill., has just been received. It is the most complete yet issued by this enterprising firm and contains 656 pages of valuable information covering the thousands of articles of manufacture handled by them. The catalogue is fully illustrated and should find a welcome in every machinery house. The house announces that while it is impossible to cover all the machinery and supplies as handled by its various departments everything associated with its established lines is carried. A corps of engineers is maintained and in making enquiries or selections every facility is accorded patrons. The catalogue makes extensive reference to mining equipment and machinery and is strong on electrical mining equipment for either alternating or direct current.

HEMP STATISTICS, 30th JUNE, 1909.

(Courtesy of C. S. NICHOLSON, *Secretary, Manila Chamber of Commerce.)*

EXPORT OF HEMP, JUNE, 1909.

Date	Vessel	London	L'pool	Atlantic U.S.	Pacific East & California	Continent.	Australia	Other P'ts.	Total Bales
1909		116,023	63,299	159,725	35,982	29,580	7,203	15,484	427,296
June 1	Empire							218	218
" 2	Taming							250	250
" 4	Loongsang	2,518				750			3,268
" 5	Rubi	2,450						350	2,800
" "	Simosha			20,484					20,484
" "	Kennebec...Cebu			11,241					11,241
" 8	Kaifong							23	23
" "	Yuensang	650				100		250	1,000
" 12	Zafiro	1,150				500		200	1,850
" 13	Dakota				4,039				4,039
" 14	Isla de Luzon		2,500			96			2,596
" "	Nikko Maru						1,520		1,520
" 15	Tean							150	150
" 17	Kayembe							225	225
" 18	Sungkiang...Cebu	500	200						700
" 19	Wray Castle			14,150					14,150
" "	Inverclyde...Cebu			26,490					26,490
" "	Korea				500				500
" 21	Socotra.......Cebu	2,455	1,967			325			4,747
" "	Denbigshire	5.950	1,365			1,637			8,952
" 22	Prinz Sigismund.					1,550			1,550
" "	Prinz Waldemar.						80		80
" "	Wray Castle.Cebu			13,870					13,870
" 24	Oceano				10,450			80	10,530
" "	Chihli.........Cebu	1,350						75	1,425
" "	Eastern							232	232
" 25	Yuensang	780				593		350	1,723
" "	Indrani			15,222					15,222
" 26	Zafiro	5,000				100		450	5.550
" 29	Tean							100	100
" 30	Kaifong	860	250					25	1,135
		139,686	69,581	261,182	50.971	35,231	8,803	18,462	583,916

FAR EASTERN STOCKS AND QUOTATIONS

Courtesy of Messrs. Kadoorie & Co., Hongkong, July, 1909.

STOCK.	WHEN ESTABLISHED	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	AT WORKING ACCOUNT	DATE	LAST DIVIDEND.	Approximate Yield per cent per annum at Present Quotation	CLOSING QUOTATIONS.
BANKS.											
Hongkong & Shanghai Banking Corporation	1865	$15,000,000	120,000	$125	$125	s £1,500,000 g $14,500,000 i $250,000	$2,006,234	31-12-08	Final of £2-and bonus of 5/- (@ ex 1/8 ¾=$26.024, making in all $47.966 for 1908..	5¾	1015 buyers £95
National Bank of China, Ld.	1891	£699,475	10) 99,925	£7	£6	c £4,099 $150,000	$10,223	31-12-07	$2 (London 3/6) for 1903	....	$51
MARINE INSURANCES.											
Canton Insurance Office, Ld.	1881	$2,500,000	10,000	$250	$50	$1,560,000 j $232,757 u $411,990	Nil.	31-12-07	$14 for 1907	7½	$195 sellers
North China Insurance Co., Ld.	1863	£150,000	10,000	£15	£5	g £125,000 s Tls. 150,000 u Tls. 303,747 f Tls. 118,277	Tls. 160,512	30-6-08	Interim of 7/6 for % 1907	5½	Tls. 108 buyers
Union Ins. Society of Canton, Ld.	1867	$3,100,000	12,400	$250	$100	s $3,000,000 g £90,000 f $192,248 j £105,249 u $682,609	$2,464,901	31-12-08	Final of $17 making $47 for 1907, and interim of $30 for account 1908	5¾	$837½ sellers
Yangtsze Ins. Association, Ld.	1862	$1,200,000	12,000	$100	$60	$1,000,000 j $294,405 f $199,234	$707,637	31-12-08	$12 and bonus $3 for 1907	7½	$230
FIRE INSURANCES.											
China Fire Ins. Co., Ld.	1870	$2,000,000	20,000	$100	$20	$1,000,000 x $438,668 f $13,802	$375,314	31-12-08	$6 and bonus $2 for 1907	7½	$111 buyers
Hongkong Fire Ins. Co., Ld.	1868	$2,000,000	8,000	$250	$50	$1,438,173	$368,711	31-12-08	$27 for 1907	8	$345 buyers
SHIPPING.											
China & Manila Steamship Co., Ld.	1882	$750,000	1) 30,000	$25	$25		Dr. $21,538	31-12-08	$1 for 1906	....	$10 sellers
Douglas Steamship Co., Ld.	1883	$1,000,000	20,000	$50	$50	$264,638 i $99,067	Nil.	30-6-08	$2½ for year ending 30-6-08	7	$36 sellers
Hongkong, Canton & Macao Steamboat Co., Ld.	1865	$1,200,000	80,000	$15	$15	e $250,000 d. i. $607,500 f $ 79,428 $ 25,344	$20,279	30-12-08	Final of $1½ making in all $2½ for 1908	7¾	$33
Indo-China Steam Navigation Co., Ld. (Preferred) Do. Do. (Deferred)	1882	m £600,000	2) 60,000 2) 60,000	£5	£5	£10,000 i £240,000	£13,700	31-12-07	6/- for 1907 on pref. shares only at ex. 1/9 11/16, $3.154	....	$66
Shanghai Tug & Lighter Co., Ld. Do. Preference	1903	Tls. 1,500,000	20,000 10,000	Tls. 50	Tls. 50	Tls. 75,000	Tls. 14,510	31-12-08	Final of Tls. 1¾ making Tls. 3½ for 1908	7½ 7	Tls. 51 Tls. 53
"Shell" Transport & Trading Co., Ld.	1898	£ 2,000,000	2,000,000	£1	£1	£720,000 i £100,000	£63,817	31-12-07	Final of 2/- for 1908 & int. of 1/- for a/c 1909	....	61/- ex-div.
"Star" Ferry Co., Ld.	1898 1900	$200,000	10,000 10,000	$10 $10	$10 $5	$65,000 i $48,980	$3,121	30-4-09	$1.00 50 cts. for year ended 30-4-09	4 3½	$26 $15½
Taku Tug & Lighter Co., Ld.	....	Tls. 1,500,000	12) 30,000	Tls. 50	Tls. 50	Tls. 98,000 d Tls. 481,479 e Tls. 44,100 i Tls. 81,200 q Tls. 7,000	Tls. 2,215	31-12-08	Final of Tls. 1½ making Tls. 2½ for 1908	11	Tls. 45 buyers
REFINERIES.											
China Sugar Refining Co., Ld.	1878	$2,000,000	20,000	$100	$100	e $350,000 r $56,848	Dr. $5858	31-12-08	$5 for year ending 31-12-08	3½	$140 sales & s.
Luzon Sugar Refining Co., Ld.	1882	$700,000	7,000	$100	$100	none	Dr. $135,893	31-12-08	$3 for 1897	....	$15 sellers
Perak Sugar Cultivation Co., Ld.	....	Tls. 350,000	7,000	Tls. 50	Tls. 50	Tls. 100,000	Tls. 9,173	31-8-07	Tls. 3½ for year ending 31-8-08	....	Tls. 260 sales
MINING.											
Chinese Engineering & Mining Co., Ld.	1901	£1,000,000	1,000,000	£1	£1	d £175,000 h £12,289	£11,556	28-2-07	Int. of 1/6 for year ending 29-2-09 (Coupon No. 12)	7	Tls. 18.20 sales
Raub Australian Gold Mining Co., Ld	1892	£200,000	150,000 50,000	£1 £1	18-10 £1	£4,873	Dr. £2,191	31-3-08	No. 12 of 1/-=48 cents	....	$9 sellers
DOCKS, WHARVES AND GODOWNS.											
Fenwick (Geo.), & Co., Ld.	1889	$450,000	s 18,000	$25	$25	$42,986	Dr $7,421	31-12-08	$1¾ for year ending 31-12-06	....	$12
Hongkong & Kowloon Wharf & Godown Co., Ld.	1886	$3,000.000	60,000	$50	$50	$550,000 t $26,806 i $40,000	$30,102	31-12-08	Final of $1½ making $3½ for 1907	....	$57 buyers
Hongkong & Whampoa Dock Co., Ld.	1866	$2,500,000	50,000	$50	$50	i $97,199 v $200,000	$387,078	31-12-08	Final of $4 making $8 for 1908	12	$68 sellers
Shanghai Dock & Engin'g Co., Ld.	1906	Tls. 5,570,000	13) 55,700	Tls. 100	Tls. 100	Tls. 1,000,000	Tls. 33,742	30-4-08	Interim of Tls. 2½ for month ending 31-10-1908	6¼	Tls. 82
Shanghai & Hongkew Wharf Co., Ld.	1902	Tls. 3,600,000	36,000	Tls. 100	Tls. 100	b Tls. 697,257 r Tls. 50,000 e Tls. 125,000	Tls. 22,818	31-12-08	Final of Tls. 6 making Tls. 10 for 1908	6¼	Tls. 163
LANDS, HOTELS AND BUILDINGS.											
Anglo-French Land Investment Co., Ld.	1906	Tls. 2,500,000	3) 25,000	Tls. 100	Tls. 100	Tls. 35,000	Tls. 4,314	29-2-09	Tls. 6 for year ending 29-2-09	5¾	Tls. 104 sales
Astor House Hotel Co., Ld.	1901	$750,000	4) 30,000	$25	$25	$30,000	Dr. $4,200	30-6-08	$2½ for year ending 30-6-07	....	$20
Astor House Hotel, Ld. (Tientsin)	....	Tls. 200,000	4,000	Tls. 50	Tls. 50	Tls. 35,000 e Tls. 10,000	Tls. 1,013	28-2-0	20 per cent. for 1906	....	Tls. 60
Central Stores, Ld.	....	$751,845	16) 50,123	$15	$15	n. $1,000	$24,641	31-12-08	$1.20 on old & 60 cts. on first new issue	....	$19
Hongkong Hotel Co., Ld.	1866	$600,000 $400,000	12,000 8,000	$50 $50	$50 $25	$648,975 r $13,912	$295	31-12-08	Final of $3 making $6 1908	6½	$68 b. ex n i $38 b. new n i
Hongkong Land Investment & Agency Co., Ld.	1889	$5,000,000	50,000	$100	$100	e $250,000	$26,475	31-12-08	Final of $3½ making $7 for 1908	½	$108 sa. & sellers
Humphreys' Estate & Finance Co., Ld.	1887	$1,500,000	150,000	$10	$10	i $222,172 20) $43,261	$5,486	31-12-08	60 cents for 1908	6¼	$9¾ buyers
Kowloon Land & Bldg. Co., Ld.	1889	$300,000	6,000	$50	$30	none	$278	31-12-08	$1½ for 1908	5	$30
Shanghai Land Investment Co., Ld.	1888	Tls. 3,900,000	78,000	Tls. 50	Tls. 50	Tls. 1,523,045 e Tls. 300,000	Tls. 142,404	31-12-08	Final of Tls. 3 & bonus of Tls. 2 making Tls. 8 for 1908	6¾	Tls. 120 buyers
Tientsin Land Investment Co., Ld.	1902	Tls. 772,600	7,726	Tls. 100	Tls. 100	i Tls. 75,308	Tls. 129	31-12-08	Final of Tls. 2 making Tls. 5 for 1908	....	Tls. 85 buyers
West Point Bldg. Co., Ld.	1889	$625,000	12,500	$50	$50	none	$1,968	31-12-08	Final of $2 making $4 for 1908	8¾	$46½ sales
COTTON MILLS.											
Ewo Cotton Spinning & Weaving Co., Ld.	1895	Tls. 1,000,000	5) 20,000	Tls. 50	Tls. 50	Tls. 150,000 Tls. 45,939	Tls. 8,820	31-10-08	Tls. 5 for year ended 31-10-08	4	Tls. 133
Hongkong Cotton Spinning, Weaving & Dyeing Co., Ld.	1901	$1,250,000	125,000	$10	$10	e $20,000	$9,553	31-7-08	50 cents for year ending 31-7-08	6	$8½ sellers

FAR EASTERN STOCKS AND QUOTATIONS—(Continued.)

STOCK.	WHEN ESTABLISHED	CAPITAL.	NO. OF SHARES.	VALUE.	PAID UP.	RESERVE	AT WORKING ACCOUNT.	DATE.	LAST DIVIDEND.	Approximate Yield per cent. per annum at Present Quotation.	CLOSING QUOTATIONS
International Cotton Manufacturing Co., Ld.	1895	Tls. 750,000	6) 10,000	Tls. 75	Tls. 75	Tls. 175,000	Tls. 8,372	30-9-08	Tls. 6 for year end. 30-9-06 (8%).	....	Tls. 88 sellers
Laou-kung-mow Cotton Spinning & Weaving Co., Ld.	1895	Tls. 800,000	8,000	Tls. 100	Tls. 100	none	Tls. 4,829	31-12-08	Tls. 4 for 1908	....	Tls. 110 buyers
Soy Chee Cotton Spinning Co., Ld	1895	Tls. 1,000,000	2,000	Tls. 500	Tls. 500	*l* Tls. 31,172	Tls. 15,911	31-12-08	Tls. 50 for 1906	....	Tls. 375 sellers
MISCELLANEOUS.											
Bell's Asbestos Eastern Agency, Ld.	1895	£5,377.10s	11) 8,604	12/6	12/6	£1,500	£648	31-12-08	1s. 10½d. for 1907=$1.037	10	$10¼
China-Borneo Co., Ld.	1903	$720,000	8) 60,000	$12	$12	$40,000	Nil.	31-12-08	$1.20 for 1908	8	$14¾
China Light & Power Co., Ld.	1901	$550,000	50,000	$10	$10	none	$61,138	28-2-07	60 cents for year ending 28-2-06	....	$7 sellers
Do. do. Special Shares	1907		17) 50,000	$1	$1						
China Provident Loan & Mortgage Co., Ld.	1898	*a* $1,250,000	7) 125,000	$10	$10	$100,000	$3,407	31-12-08	80 cents for 1908	8½	$9.60 buyers
Dairy Farm Co., Ld.	1896	$300,000	40,000	$7½	$6	*l* 10,000 / $8,000	$48	31-7-08	$1.30 for year ending 31-7-08	7¾	$16¾ buyers
Green Island Cement Co., Ld.	1889	$4,000,000	400,000	$10	$10	$13,000	$3,756	31-12-08	Final of 50 cts. making 90 cts. for 1908	10	$9 sellers
H. Price & Co., Ld	1907	$120,000	19) 15.000	$10	$10	$5,000	$251	31-12-07	75 cts. for 9 months endg. 31-12-07	8	$12
Hall & Holtz, Ld	....	$420,000	14) 21,000	$20	$20	$186,000	$8,957	28-2-09	$2 for year ending 28-2-09	9¼	$21 buyers
Hongkong Electric Co., Ld.	1889	$600,000	60,000	$10	$10	none	$5,195	29-2-09	$1.00 and bonus 20 cents for year ending 29-2-09	6	$20 buyers
Hongkong Ice Co., Ld.	1881	$125,000	5,000	$25	$25	*k* $150,000	$7,616	31-12-08	Final of $15 per share making in all $19 for 1908	12¼	$155 sellers
Hongkong Rope Manufacturing Co., Ld.	1883	$600,000	$60,000	$10	$10	$20.000	$8,790	31-12-08	Final of $1 per share making $2 for 1908	8½	$25 buyers
Maatschappij tot Mijn-, Bosch- en Landbouwexploitatie in Langkat	1902	Gs. 2,500,000	25,000	Glds. 100	Glds. 100	Tls. 547,500 / *i* Tls. 63,914 / 21 Tls. 547,500	Tls. 316,682	31-10-08	Secnod quarterly dividend of Tls. 12½ for % 1909	4	Tls. 1085
Peak Tramways Co., Ld.	1907	$750.000	25,000	$10	$10	$20,000	$ 2,204	30-4-09	80 cents on fully paid shares & 8 cents on $1 paid shares for year ending 30-4-09	6	$13¼ buyers
Do. (New)			50,000	$10	$1					3	$1½
Philippine Co., Ld.	1904	$750,000	75,000	$10	$10	none	Ps. 18.640	31-12-08	None	....	$8
Robinson Piano Co., Ltd	1900	$200,000	22) 4,000	$50	$50	$5,000	$61,138	31-8-08	6% for ½ year ending 30.9.07	....	$50
Shanghai Gas Co., Ld.	1903	Tls. 800,000	24,000	Tls. 50	Tls. 50	*d* Tls. 100,000	Tls. 6,603	31-12 07	Interim of 7% Tls. 3½ for % 1908	6¾	Tls. 113 sales
Shanghai-Sumatra Tobacco Co., Ld.	1902	Tls. 600,000	9) 30,000	Tls. 20	Tls. 20	Tls. 24,820 / *w* Tls. 75,000	Tls. 5,250	31-10-08	Final of Tls. 5 making Tls. 8 for 1908	4¾	Tls. 166 sales
Shanghai Waterworks Co., Ld.	1881	£327,000	16,350	£20	£20	Tls. 220,000	Tls. 23,038	31-12-08	Final of 30/- making 45/- for 1908	....	Tls. 415 buyers
South China Morning Post, Ld.	1903	$150,000	6,000	$25	$25	none	*Dr.* $56,602	31-8-08	None	....	$24
Steam Laundry Co., Ld.	1902	$100,000	20,000	$5	$5	none	$236	31-5-08	40 cents for year ending 30-5-08	8	$5 buyers
Tientsin Waterworks Co., Ld.	1901	Tls, 200,000	2,000	Tls. 100	Tls. 100	Tls. 15,259 / *e* Tls. 4,000	Tls. 201	30-4-07	Tls. 6½ for year ending 30-4-07	....	Tls. 94 buyers
Union Waterboat Co., Ltd.	1905	$500,000	15) 50,000	$10	$10	none	$172	31-12-08	60 cents for year-end, 31-12-1908	5	$11 buyers
United Asbestos Oriental Agency, Ld.	1896	$100,000	10,000	$10	$4	$35,000	$1,360	31-5-07	80 cts. on 9,900 ord shares & $19.80 on 100 founders shares for year ending 31-5-07	6½	$13 sales
Watson (A. S.) & Co., Ld.	1886	$900,000	90,000	$10	$10	$300,000 / *e* $25,000	$2,613	31-12-08	Final of 30 cents making 60 cents for 1908	6⅔	$8.70
Weismann Limited	1904	$17,500	175	$100	$100	$6,700	$13	31-7-07	10 per cent for year endg. 31.7.07.	....	$150
William Powell, Ld.	1901	$105,000	15,000	$7	$7	none	$3.95	30-6-08	Final of 30 cents making 80 cents for year ending June 30th 1906	....	$4 sellers

LOANS AND DEBENTURES.	AGENTS FOR THE LOAN.	AMOUNT OF LOAN.	PAR VALUE.	OUTSTANDING BONDS.	WHEN PAYABLE.	CLOSING QUOTATIONS.
China Government, 7 per cent. Silver Loan 1886 E.	Hongkong & Shanghai Banking Corporation.	Tls. 767,200	Tls. 250	1914	Mar. 31st and Sept. 30th each year until Mar. 31st, 1917	par. Plus interest
Hongkong Hotel Company, Ltd., 6 per cent. Mortgage Debentures of 1899 ‡	Hongkong & Shanghai Banking Corporation.	$500,000	$500	§ all	Half yearly, June 30th and December 31st	par Plus interest
Shanghai & Hongkew Wharf Company, Ltd., 6 per cent. Debentures of 1902	Hongkong & Shanghai Banking Corporation.	Tls. 543,900	Tls. 100	....	Half yearly, June 30th and December 31st	Tls. 103½ Plus interest
Astor House Hotel Company, Ltd., 8 per cent. Debentures of 1903	Hongkong & Shanghai Banking Corporation.	Tls. 500,000	Tls. 100	....	Half yearly, January 1st and July 1st	102½ Plus interest
Chinese Engineering & Mining Co., Ltd., 6 per cent. Debentures of 1903 †	....	£500,000	¶	£431,960	Half yearly, June 30th and December 31st	par. Plus interest
International Cotton Manufacturing Co., Ltd. 7% Debentures of 1901	Russo Chinese Bank	Tls. 500,000	Tls. 100	‖	Half yearly, March 31st and Sept. 30th	Tls. 97½. Plus interest
China Light and Power Co., Ltd. 6% Debentures of 1907 ***	....	$500,000	$100	....	Half yearly, June 30th and December 31st.	par.

a Authorized capital $2,000,000.
b Building Reserve Account.
c Capital Reserve Fund.
d Depreciation Fund.
e Equalization of Dividend Fund.
f Exchange and Investment Fluctuation Account.
g Gold Reserve Fund
h Exchange Reserve Account.
i Insurance Fund.
j Reinsurance Fund.
k Contingencies Account.
l Legal Reserve Fund.
m Authorized Capital
n Sinking Fund.
o Raw Sugar Reserve Account.
p Premium on New Issue.
q Boiler Repairs and Renewals Account
r Repairs and Renewals Account.
s Silver Reserve Fund.
t Depreciation and Repair Account
u Underwriting Suspense Account.
v Special account
w Special Works Fund.
x Extra Reserve Fund.
y 72,560 owned by the Company.
z 7,200 shares unissued.
1 4,000 shares unissued.
2 First issue of 60,000 of which 10,411 unallotted.
3 5,000 shares unissued.
4 4,480 shares unissued.
5 5,000 shares unallotted.
6 1,616 shares unallotted.
7 75,000 shares unissued.
8 14,000 shares unissued.
9 17,000 shares unissued.
10 40,453 shares actually issued.
11 7,688 shares actually issued.
12 4,200 shares unissued.
13 500 shares unissued.
14 399 shares unissued.
15 22,277 shares unissued.
16 10,000 shares unissued.
17 Special shares are entitled to half of the profits.
18 Capital contributed by Chinese Government Kuping Tls. 5,000,000.
19 12,000 issued only.
20 Typhoon and Floods Insurance Fund
21 Special Cash Reserve.
22 1000 shares unissued.
* Based on last year's dividend.
** Based on present dividend.
‖ Only Tls. 134,000 taken up.
§ 216 held by the Company.
¶ In certificates of £20 and £100.
‡ Redeemable in 10 years, or at option of Company, the Company giving 6 months notice.
† Redeemable at par at rate of £10,000 per annum from 31st December 1903 to 31st December 95.
*** Redeemable at par on 30th June, 1915.
Dr. Deficit.

ADDITIONAL SHANGHAI SHARE QUOTATIONS

STOCK	CLOSING QUOTATIONS	HIGHEST AND LOWEST PRICES DURING THE WEEK	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	LAST DIVIDEND	WHEN PAID
Oriental Consolidated Mining Co., Ltd.	27s. 6d.		G. $5,000,000	500,000	G. $10	G. $10	none	3rd Div. of Gold cents 50 making gold $1½ for year ended 30th June 1907.	Dec. 31, 1908
Kiang pei-ting Coal & Iron Mine Co., Ltd.	Tls. 50		Tls. 500,000	5,000	Tls. 100	Tls. 50	—	First year	—
Vulcan Iron Works, Limited	Tls. 400		Tls. 500,000	1,000	Tls. 500	Tls. 500	—	Tls. 50 for year ended 31.8.06	Nov. 1, 1906
Yangtsze Wharf & Godown Co., Limited	Tls. 125 nominal		Tls. 250,000	2,500	Tls. 100	Tls. 100	Tls. 50,000	Tls. 15 for 1908	April 1, 1909
Wei-hai-wei Land & Building Co., Limited	Tls. 10 nominal		Tls. 91,850	3,674	Tls. 25	Tls. 25	—	—	—
Union Estate & Investment Co., Limited	Y. 105 sales		Y. 1,000,000	10,000	Y. 100	Y. 100	—	First year	—
Grand Hotel, Limited	Y. 100 sellers		Y. 500,000	5,000	Y. 100	Y. 100	—	Interim Y. 5 for ½ year	Dec. 31, 1908
Hotel des Colonies Company, Limited	Tls. 9 sellers		Tls. 112,500	9,000	Tls. 12½	Tls. 12½	Tls. 29,783	6% for 1907	May 29, 1908
Kalee, Limited	$100 nominal		$400,000	4,000	$100	$100	—	$5 for 1907	May 22, 1908
Anglo-German Brewing Co., Limited	$85 buyers		$100,000	4,000	$100	$100	none	$7 for 1907	Mar. 12, 1908
Butler Tile Works, Limited	Tls. 50 nominal		Tls. 60,000	1,200	Tls. 50	Tls. 50	—	Tls. 3 for year ending 31.3.07	May 29, 1907
Major Bros., Limited	Tls. 40 sellers		Tls. 300,000	6,000	Tls. 50	Tls. 50	—	—	—
Oriental Ice Company, Limited	Tls. 50		Tls. 130,000	2,600	Tls. 50	Tls. 50	—	First year	—
Scharffs Oil and Bone Mills, Ltd.	Tls. 50		Tls. 200,000	4,000	Tls. 50	Tls. 50	—	First year	—
Shanghai Ice Company, Limited.	Tls. 13 sales		Tls. 200,000	8,000	Tls. 25		—	3% for 1907	Mar. 14, 1908
Shanghai Oil Co., Limited	Tls. 25		Tls 175,000	7,000	Tls. 25	Tls. 25	—	First year	—
Campbell, Moore & Co., Limited.	$10 buyers		$12,000	1,200	$10	$10	$9,000	$3 for 1905	Apr. 2, 1906
Dunning & Company, Limited	$50 sellers		$100,000	2,000	$50	$50	—	$5 year ending 28.2.08	Apr. 15, 1908
J. Llewellyn & Co., Limited	$50 buyers		$72,000	1,200	$60	$60	—	7.20 for 1908	Apr. 1, 1909
Lane, Crawford & Company	$137½ sales	137½	$250,000	2,500	$100	$100	—	Final of 7% making 14% for 1907	May 25, 1908
Mondon (E. L.) Limited	Tls. 6 buyers		Tls. 225,000	9,000	Tls. 25	Tls. 25	none	—	—
S. Moutrie & Company, Limited.	$48 sellers		$250,000	5,000	$50	$50	—	$4 for year ended March 31, 1908.	June 18, 1908
Weeks & Company, Limited	$22 buyers		$400,000	20,000	$20	$20	$25,000	Interim of 80 cents for 1908	Dec. 14, 1908
Dominion Rubber Co., Limited.	Tls. 4		Tls. 225,000	22,500	Tls. 10	Tls. 4	—	First year	—
Kalumpong Rubber Co., Ltd.	Tls. 42 sellers		Tls. 700,000	14,000	Tls. 50	Tls. 50	** Tls. 11,844.48	6% for 1907	Nov. 29, 1908
Senawang Rubber Estates Company, Limited	Tls. 100		Tls. 250,000	2,500	Tls. 100	Tls. 100	—	—	—
Senawang Rubber Estates Company, New	Tls. 75				Tel. 100	Tls. 75			
Tebong Rubber and Tapioca Estate, Limited	20s.		£76,000	76,000	£1	£1	—	—	—
Eastern Fibre Co., Limited	Tls. 10 nominal		Tls. 300,000	30,000	Tls. 10	Tls. 10	—	—	—
Shanghai Mercury, Limited	Tls. 50 buyers		Tls. 105,500	2,100	Tls. 50	Tls. 50	—	Final of 6% making 10% for year ended 30.4.08	June 29, 1908
Shanghai Mutual Telephone Co., Limited	Tls. 57 buyers	57½	Tls. 675,000	13,500	Tls. 50	Tls. 50	—	Tls. 3 for 1907	June 28, 1908
China Export Import & Lumber Company, Limited	Tls. 92½ nominal		Tls. 350,000	500	Tls. 100	Tls. 50	—	10 p. c. for year ending 29.2.08	May 1, 1908
China Printing Co., Limited	Tls. 50		Tls. 750,000	1,500	Tls. 50	Tls. 50	—	7% 1908	Apr. 18, 1909
Dallas Horse Repository Co., Ltd.	Tls. 25 nominal		Tls. 250,000	5,000	Tls. 50	Tls. 50	—	—	—
Hirano Mineral Water Co., Ltd.	Y. 15 sales		Y. 125,000	5,000	Y. 25	Y. 25	—	10%=yen 2½ for year ending 30th Sept. 08 Y. 1.20 for year ended Feb. 29	Apr. 26, 1909
E. E. Porter & Co., Limited	$50		$100,000	2,000	$50	$50	—	$6 for 1907	Apr. 22, 1908
Shanghai Electric & Asbestos Company, Limited	$23 sales		$125,000	5,000	$25	$25	—	Final of 4% making 8% for 1907	May 29, 1908
Shanghai Electric Construction Company, Limited	£11 buyers	£11	£300,000	30,000	£10	£10	—	First year	—

DEBENTURES

LOANS		PRICE—PLUS ACCRUED INTEREST	AMOUNT OF LOAN	OUTSTANDING	NOMINAL VALUE	RATE OF INTEREST	WHEN PAYABLE
Shanghai Municipal Debentures	1892	Tls. 92½	Tls. 50,000	Tls. 45,400	Tls. 100	5 %	June & Dec.
do	1893	,, 96	,, 125,000	" 32,000	" 100	5½ ,,	Do
do	1894	,, 104½	,, 105,000	" 60,000	" 100	6 ,,	Do
do	1895	,, 92½	,, 115,000	" 32,600	" 100	5 ,,	Do
do	1896	,, 92½	,, 140,000	" 131,800	" 100	5 ,,	Do
do	1897	,, 92½	,, 268,800	" 268,400	" 100	5 ,,	Do
do	1898	,, 104½	,, 300,000	" 60,000	" 100	6 ,,	Do
do	1900	,, 96	,, 33,900	" 31,700	" 100	5½ ,,	Do
do	1901	,, 104½	,, 250,000	" 200,000	" 100	6 ,,	Do
do	1902	,, 104½	,, 150,000	" 150,000	" 100	6 ,,	Do
do	1903	,, 104½	,, 490,500	" 490,500	" 100	6 ,,	Do
do	1904	,, 104½	,, 214,500	" 214,500	" 100	6 ,,	Do
do	1905	,, 104½	,, 320,000	" 320,000	" 100	6 ,,	Do
do	1907	,, 104½	,, 250,000	" 250,000	" 100	6 ,,	Do
Chinese Imperial Government Loan	1886 E	,, 250	,, 767,200	" 354,400	" 250	7 ,,	Mar. & Sept
Shanghai Land Investment Co., Debentures	1890	,, 102	,, 250,000	" 250,000	" 100	6 ,,	May & Nov.
do	1892	,, 96	,, 250,000	" 250,000	" 100	5½ ,,	June & Dec.
do	1894	,, 101	,, 250,000	" 250,000	" 100	6 ,,	Mar. & Sept.
do	1896	,, 92½	,, 250,000	" 250,000	" 130	5 ,,	June & Dec.
do	1900	,, 102	,, 250,000	" 250,000	" 100	6 ,,	April & Oct.
do	1901	,, 102	,, 250,000	" 250,000	" 100	6 ,,	June & Dec.
do	1901	,, 96	,, 100,000	" 100,000	" 100	5 ,,	May & Nov.
do	1902	,, 102	,, 400,009	" 400,000	" 100	6 ,,	June & Dec.
do	1905	,, 102	,, 250,000	" 250,000	" 100	6 ,,	Do
Shanghai Waterworks Co., Debentures	1894	,, 103	,, 100,000	" 100,000	" 100	6 ,,	Mar. & Sept.
do	1896	,, 92½	,, 100,000	" 100,000	" 100	5 ,,	June & Dec.
do	1899	,, 103	,, 50,000	" 50,000	" 100	6 ,,	Do
do	1900	,, 103	,, 100,000	" 100,000	" 100	6 ,,	Mar. & Sept.
do	1902	,, 103	,, 100,000	" 100,000	" 100	6 ,,	Do
do	1903	,, 103	,, 100,000	" 100 000	" 100	6 ,,	June & Dec.
Perak Sugar Cultivation Co., Debentures	1902	,, 101	,, 200,000	" 200,000	" 100	7 ,,	April & Oct.
Shanghai Gas Co., Debentures	1897	,, 92½	,, 100,000	" 100,000	" 100	5 ,,	Do
do	1899	,, 102	,, 1,000,000	" 100,000	" 100	6 ,,	May & Nov.
do	1900	,, 102	,, 2,000,000	" 200,0'0	" 100	6 ,,	June & Dec.
Shanghai and Hongkew Wharf Co., Debentures	1902	,, 100½	,, 799,800	" 799,800	" 100	6 ,,	Do
Astor House Co., Debentures	1905	,, 103	,, 500,000	¶ " 500,000	" 100	7 ,,	Do
British Municipal Council, Hankow	1901	Sh. ,, 105	H'kow Tls 100,000	H'kow Tls 100 000	" 100	7 ,,	June & Dec.
Shanghai Club Debentures	1907	,, 96	Tls. 170,000	Tls. 170,000	" 100	6 ,,	Do
Country Club Debentures		,, 97	,, 139,000	" 139,000	" 100	6 ,,	Do
do	1907	,, 97	,, 92,000	" 92,000	" 100	6 ,,	Do
Lane Crawford & Co., Debentures	1907	,, 100	,, 110,000	" 110,000	" 100	7 ,,	Mar. & Sept.
Anglo-French Land Debentures	1908	,, 102½	,, 250,000	" 250,000	" 100	6 ,,	June & Dec.

SINGAPORE SHARE QUOTATIONS

(Courtesy Messrs. Fraser & Co., Brokers, Singapore, June, 1909)

Date of Formation	Capital	Capital paid up	No. of Shares Issued	Issue Value	Paid up	Reserve	Last Dividend	Name	Buyers.	Sellers.
								MINING		
1903	$300,000	300,000	30,000	10	10	......	12% for year ending 31-3-09	Belat Tin Mining Co., Ltd.	6.00	6.25
1907	$300,000	225,000	22,500*v*	10	10	......		Bruang Ltd.	6.75	7.00
1901	$600,000	600,000	60,000	10	10	25,000	10% for year ending 30-4-08	Bruseh Hydraulic Tin Mining Co., Ltd.	7.75	8.00
1903	£500,000	444,769	444,769*a*	1	1	......		Duff Development Co., Ltd.	5.25	5.50
1907	$400,000	375,000	37,500*b*	10	10	......		Kanaboi, Ltd.	....	2.75
1901	£60,000	60,000	60,000	1	1	......	2/- interim for 1908	Kinta Tin Mines, Ltd.	10.75	11.00
1906	£100,000	100,000	100,000	1	1	......		Kledang Tin Mining Co., Ltd.	3.50	3.75
1905	$150,000	99,000	9,900*c*	10	10	6,485.68	35% for year ending 31-12-07	Kuantan Tin Mining Co., Ltd.	2.25	2.50
1906	£120,000	120,000	120,000	1	1	......		Lahat Mines Ltd.	8.50	9.00
1906	£30,000	30,000	30,000	1	1	......		Malaya and Siam Corporation, Ltd.	....	5/-
1906	$450,000	450,000	45,000	10	10	......		Malacca Tin Dredging Co., Ltd.	2.25	2.50
1906	£250,000	179,500	500,000*e*	5/-	5/-	......		Pahang Consolidated Co., Ltd.	1.4.9	1.5.3
			54,500	1	1	......		" " " 7% *Pref.*	....	nom.
1907	£100,000	80,000	80,000*f**	1	1	......		Pengkalen, Ltd.	9.25	9.50
1904	£120,000	100,000	100,000*d*	1	1	6,000	45% for year ending 30-6-07	Pusing Lama Tin Mines, Ltd.	3.50	4.00
1907	$450,000	300,000	30,000*d**	10	10	......		Rahman Hydraulic Tin Ltd.	....	6.75
1905	£27,000	27,000	27,000	1	1	......	1/- interim during 1907	Rambutan, Ltd.	6.50	7.00
1892	£200,000	191,250	50,000	1	1	4,873	1/- paid January 1901	Raub Aust. Gold Ming. Co., Ltd, *Fully pd.*	6.60	6.80
			150,000	1	18/10	......	1/- " " "	" " " *Contributory*	6.25	6.50
1905	£40,000	40,000	40,000	1	1	......		Redhills Tin Mining Co., Ltd.	3.25	3.50
1900	$110,000	110,000	22,000	5	5	......	3% for year ending 22-1-09	Royal Johore Tin Mining Co., Ltd.	1.25	1.40
1907	$550,000	500,000	50,000*l**	10	10	......		Salak South, Ltd.	7.25	7.50
1907	£80,000	80,000	80,000	1	1	......		Sempam Tin Mines, Ltd.	3.50	4.00
1906	$850,000	850,000	85,000	10	10	25,000	10% for year ending 31-12-08	Serendah Hydraulic Tin Ming. Co., Ltd.	8.00	8.50
1899	$230,000	230,000	23,000	10	10	......	3% for ½ year ending 31-12-08	Sipiau Tin Co., Ltd.	4.00	4.25
1907	£90,000	70,000	70,000*w*	1	1	......	-/6 interim for 1908	Tekka, Limited	14 00	14.25
1892	£150,000	150,000	150,000	1	1	......		Tongkah Harbour Tin Dredging Co., Ltd.	16.50	17.50
1902	£160,000	160,000	160,000	1	1	......	5/- during 1907	Tronoh Mines, Ltd.	9.75	9.85
								RUBBER		
1905	£150,000	137,062 10/-	46,500	1	1	......	30% for year ending 31-12-08	Anglo-Malay Rub. Co., Ltd. *Fully paid*	6.10.0	6.15.0
			103,500	1	17/6	......	" " " " " "	" " " *Contributory*	6.7.6	6.12.6
1905	$200,000	151,200	15,120*c**	10	10	7,400	25% for year ending 31-3-09	Balgownie Rub. Estate Ltd. *Fully paid*	34.50	35.50
1904	£30,000	20,187 10/-	19,000	1	1	......		Batu Caves Rub. Co., Ltd.	4.15.0	4.17.6
			4,750*f*	1	5	......				
1906	£80,000	70,000	70,000*s**	1	1	......	5% for year ending 31-3-08.	Batu Tiga (Selangor) Rubber Co., Ltd.	1.11.3	1.12.6
1907	£30,000	22,500	18,000*k**	1	1	......		Bukit Lintang Rubber Estates, Ltd.	1.17.6	2.0.0
			6,000	1	15/-	......		" " " *Contributory*	1.12 6	1.17.6
1903	£70,000	66,700	66,700*g*	1	1	......	24% for year ending 31-12-08	Bukit Rajah Rubber Co., Ltd.	8.5.0	8.7.6
1906	£35,000	27,000	6,000	1	1	......		Castlefield (K.) R. Estate, L., *Fully pd*	2.0.0	2.2.6
			24,000	1	17/6	......		" " " " " *Contributory*	1.17.6	2.0.0
1904	£16,000	16,000	10,000	1	1	......	17½% interim for 1908.	Cicely Rubber Estates Co., Ltd.	8.15.0	9.0.0
			6,000	1	1	......	20% interim for 1908.	" " " " 5% *Pref.*	8.15.0	9.2.6
1905	£75,000	58,507	55,007*i*	1	1	1,000	17½% for year ending 31-12-08	Consolidated Malay Rub. Estates, Ltd.	4.7.6	4.12.6
			7,000	1	10	......				
1906	110,000	102,500	102,500*r**	1	1	......	12% for year ending 31-12-08	Damansara (Selangor) Rubber Co., Ltd.	3.3.6	3.5.6
1906	$680,000	632,000	28,000	17	17	......		Hevea Rubber Planting Co. *Fully paid*	....	17.00
			12,000	17	17	......		" " " " *Contributory*	....	13.00
1906	£310,000	274,973-5	181,454*j*	1	1	8,784	15% for year ending 31-12-08	Highlands & Lowds. Para Rub. Co., Ltd.	2.19.0	3.0.0
			123,546	1	15/-	......	" " " " "	" " " " *Contributory*	2.12.6	2.14.0
1905	£50,000	36,500	23,000	1	1	......		Kapar Para Rubber Estates, Co., Ltd.	3.0.0	3.10.0
			27,000	1	10/-	......		" " " *Contributory*	....	nom.
1906	£180,000	180,000	180,000	1	1	......	3% for year ending 30-6-08	Kuala Lumpur Rubber Co., Ltd.	2.4.6	2.5.6
1907	£100,000	81,000	90,000*o**	1	18/-	......	7% for year ending 30-12-08	Labu (F. M. S.) Rubber Co., Ltd.	1.17 6	2.0.0
1907	£320,000	232,395	197,395*z*	1	1	3,000	10% for year ending 31-12-08	Lanadron Rubber Estates, Ltd.	3.5.0	3.6.6
			70,000	1	10/-	......		" " " *Contributory*	2.5.0	2.6.6
1906	Gs 135,000	135,000	580	250	250	......		Langen Rub. and Cocoanut Co., Ltd.	275.00	300.00
1908	£125,000	75,000	60,000*m**	1	1	......		Ledbury Rubber Estates Ltd.	1.13.0	1.14.0
			40,000	1	7/6	......		" " "	18/-	19/-
1895	£100,000	98,324 8/-	883,244*a**	2/-	2/-	4,000	60% for year ending 31-12-08	Linggi Plantations Ltd., *Ordinary*	1.2.0	1.3.0
			10,000	1	1	......	7% for year ending 31-12-08	" " " 7% *Pref.*	....	nom.
1907	£140,000	107,000	107,000*k*	1	1	......		London Asiatic R. & Produce Co., Ltd.	1.10.0	1.12.0
1906	£300,000	300,000	115,000	1	1	......	7½% for year ending 31-12-07	Malacca Rubber Plants., Ltd. 7½% *Pref.*	3 4.0	3.5.0
			185,000	1	1	......		" " *Ordinary*	3.1.0	3.2.6
1903	£30,000	22,500	225,000*l*	2	2	......	45% for year ending 31-12-08	Pataling Rubber Estates Synd. Ltd.	1.2.0	1.2.9
1906	£85,000	85,000	85,000	1	1	......		Perak Rubber Plantations, Ltd.	1.14.0	1.14.6
1906	$250,000	225,000	22,500	10	10	......		Ragalla Rubber Co., Ltd. *Ordinary*	19.00	19.00
		25,000	2,500	10	10	......		" " " 8% *Preference*	19.25	19.25
1904	£20,000	16,943 8/-	20,000*x*	1	1	......		Sagga Rubber Company, Limited	3.10.0	3.12.6
1904	$100,000	100,000	1,000*g**	100	100	20,000	25% for year ending 31-1-09.	Sandycroft Rubber Co., Ltd.	500.00	525.00
1907	£100,000	80,400	48,000*p**	1	1	......		Seafield Rubber Co., Ltd.	2.9.0	2.10.0
			48,000	1	13/-6	......		" " " *Contributory*	2.0.0	2.1.0
1898	£30,000	30,000	300,000	2/-	2/-	3,000	75% for year ending 31-12-08	Selangor Rubber Co., Ltd.	1.8.6	1.9.0
1906	£65,000	65,000	65,000	1	1	......		Shelford Rubber Estate, Ltd.	1.3 6	1.5.0
1905	$500,000	500,000	5,000	100	100	......		Singapore Rubber Co., Ltd.	145.00	150.00
1903	$250,000	250,000	2,500	100	100	......		Singapore & Johore Rub. Co., Ltd.	210.00	225.00
1906	£175,000	174,615	174,615*n**	1	1	......	3% for year ending 31-3-08	Straits Settlements (B.) Rub. Co., Ltd.	1.5.0	1.6.0
1906	£110,000	100,000	100,000*h**	1	1	......		Sungei Kapar Rubber Co., Ltd.	3.1.0	3.3.0
1907	£70,000	49.875	14,000	1	1	......		Sungei Salak Rubber Co., Ltd.	1.13.0	1.14.0
			41,000	1	17/6	......		" " " *Contributory*	1.10.6	1.12.0
1904	£50,000	45,710	41,920*m*	1	1	......		Sungei Way (Selangor) Rub. Co., Ltd.	2.15.0	2.17.6
			7,580	1	10	......		" " " *Contributory*	....	nom.
1907	£200,000	154,000	154,000*q**	1	1	......	5% for year ending 31-12-08	United Serdang (S.) R. Plantations, Ltd.	2 11.0	2.12.6
1904	£60,000	50,600	506,000*n*	2/-	2/-	......	25% interim for 1908	Vallambrosa Rubber Co., Ltd.	1.2.0	1.3.0
								GENERAL		
1908	$250,000	202,500	2,025*j**	100	100	......		Brunei Oil Royalty, Ltd.	....	100.00
1907	$1,500,000	1,065,150	25,000*i**	10	10	......	10% for year ending 31-12-08	Eastern Smelting Co., Ltd.	8.50	8.60
			116,450	10	7	......				
1898	$225,000	225,000	4,500	50	50	150,000	15% & 2½% bon. for yr. end. 31-12-08.	Fraser & Neave, Ltd.	135.00	137.50
1905	$2,400,000	2,400,000	18,000	100	....	75,000	2½% for year ending 31-10-08	Howarth Erskine, Ltd.	85.00	87.50
			6,000	100	....	......	7% for year ending 31-10-08	" " 7% *Pref*	....	100.00
1896	$1,000,000	1,000,000	6,000	100	100	600,000	10% for year ending 31-12-07	Katz Brothers, Ltd. *Deferred*	....	125.00
			4,000	100	100	......	8% " " " " "	" " 8% *Cum. Pref*	....	nom.
1901	$34,000	34,000	3,400	10	10	......	20% for year ending 31-10-08	Maynard & Co., Ltd.	19.00	19.50
1899	$875,000	875,000	6,000	100	100	175,000	5% for year ending 31/12/08	Riley, Hargreaves & Co., Ltd.	55.00	57.50
			2,750	100	100	......	7% for year ending 31/12/08	" " " " 7% *Pref.*	90.00	93.00
1903	$600,000	250,000	25,000*o*	10	10	......	7½% for year ending 30-6-08	Singapore Cold Storage Co., Ltd.	9.00	9.25
1891	$30,000	30,000	600	50	50	23,000	10% for year ending 31-7-08	Singapore Dispensary Ltd.	50.00	52.50
1903	£400,000	400,000	400,000	1	1	......		Singapore Electric Tramways, Co., Ltd.	4/3	4/6
1904	$160,000	112,000	1,120*b**	100	100	11,200	5% for year ending 30/6/07	Straits Engineering Syndicate, Ltd.	....	30.00
1884	$200,000	200,000	2,000	100	100	35,000	10% during 1907	Straits Ice Co., Ltd.	....	150.00
1890	$500,000	498,000	4,980*e**	100	100	760,000*t*	10% for year ending 31-12-08	Straits Steam Ship Co., Ltd.	187.50	190.00
1887	$3,000,000	3,000,000	300,000	10	10	130,000 / 1,222,409*u*	10% & 5% bon. for half yr. end. 31-3-09	Straits Trading Co., Ltd.	50.50	51.00

DEBENTURES

Name		Buyers.	Sellers.
Howarth Erskine, Ltd. 6%	$ 600,000	....	par.
Riley, Hargreaves & Co., Ltd. 6%	284,000	par.	2%
Sandycroft Rub. Co., Ltd. 7½%	22,100	....	nom.
Singapore Electric Tramways, Co., Ltd. 5%	£350,000	....	....
Singapore Municipal 6%	400,000	....	....
" " 5%	1,878,000	7%	....
" " 4½%	1,600,000	3%	5%
" " 4%	602,900	6%	par.
Straits Engineering Syndicate, Ltd. 6%	45,000	....	par.
Tanjong Pagar Dock Board 5%	1,050,000	....	....

a { 11,282 unissued; 43,949 6% debenture
b 2,500 unissued
c 5,100 "
d 20,000 "
e { 100,000 " *Ord.*; 45,500 " *Pref.*
f 6,250 "
g 3,300 "
i 12,993 "
j { 4,140 "; 8,60 subscribed by employees
k £40,000 6% Debentures 33,000 unissued
l 75,000 "
m 500 to be issued to employees
n 94,000 unissued.
o 35,000 "
t Sundry Reserves.
u Sundry Reserves.
v 7,500 unissued.
w 20,000 "
x 4,595 part-paid shares
z 52,605 unissued.
*a** 16,756 "
*b** 480 "
*c** 4,880 "
*d** 15,000 "
*e** 20 "
*f** 20,000 "
*g** 221 7½% Debentures.
*h** 10,000 unissued
*i** 8,550 "
*j** 475 "
*k** 6,000 "
*l** 5,000 "
*m** 25,000 "
*n** 385 forfeited
*o** 10,000 unissued.
*p** 4,000 "
*q** 46,000 "
*r** 7,500 "
*s** £10,000 Convertible 6% Debentures.
*t** 200,000 unissued.

YOKOHAMA SHARE QUOTATIONS

COURTESY A. C. HUTTON POTTS, SHARE AND GENERAL BROKER, YOKOHAMA, JUNE, 1909.

STOCKS.	CAPITAL.	NO. OF SHARES.	ISSUE VALUE.	AMOUNT PAID UP.	RESERVE FUND.	AT WORKING ACCOUNT OR CARRIED FORWARD.	DATE.	LAST DIVIDEND.	FOR TERM.	CLOSING QUOTATION.
Brett & Co., Ltd.	-Y- 28,000	2,800	-Y- 10	-Y- 10			31-12-07	10%	for 1 year	11 Sellers
Club Hotel, Ltd.	185,000	1,850	100	100	3,000	-Y- 768.96	31-3-08	7%	for 1 year	70 Nominal.
Grand Hotel, Ltd.	500,000	5,000	100	100	10,000		31-12-08	3%	for ½ year	100 Buyers.
Helm Bros., Ltd.	186,000	3,720	50	50	25,000	-Y- 6,395.55	31-12-08	17½%	for 1 year	80 Sales,
Langfeldt & Co., Ltd.	100,000	2,000	50	50		Dr. 2,038.97	31-12-08		for ½ year	60 Nominal.
C. Nickel & Co., Ltd. †	500,000	20,000	25	25		1,782.10	31-10-08	20%	for 1 year	41 Sales.
Yokohama Engine and Iron Works *	500,000	10,000	50	50	50,000	-Y- 29,421.19	31-5-08	10%	for 1 year	70 Sales
Oriental Hotel, Ltd., Ordinary }	250,000 (Ordinary and Preference together)	3,000	50	50	306,090.49 (Ordinary and Preference together)		31-8-07	12%	for 1 year	50 Nominal.
Oriental Hotel, Ltd., Preference }		2,000	50	50				8%	for 1 year	50 Nominal.
The Union Estate and Investment Co., Ltd. ‡	1,000,000	10,000	100	100	6,000.00	1,753.03	30-9-08	7%	for 1 year	100 Nominal.

† 285,000 unissued.
‡ 475,000 unissued.

*-Y- 390,000 issued.
110,000 unissued.

DEBENTURE LOANS.	AMOUNT OF LOAN.	FACE VALUE OF DEBENTURES.	RATE OF INTEREST.	INTEREST PAYABLE.	CLOSING QUOTATION.
Brett & Company, Limited	11,500.00	100.00	7%	1 June and 1 Dec.	95 Sales.
Yokohama United Club	250,000.00	100.00	7%	30 June and 31 Dec.	100 Sales.
C. Nickel & Company, Limited	50,000.00	100.00	8%	1 May and 1 Nov.	110 Sellers.
Oriental Hotel, Limited	250,000.00	100.00	8%	1 April and 1 Oct.	100 Sellers.
Union Estate and Investment Co., Limited	250,000.00	100.00	6%	30 June and 31 Dec.	95 Sellers.

JAPANESE STOCKS.	FACE VALUE.	AMOUNT PAID UP.	LAST DIVIDEND.	DIVIDEND PAYABLE.	CLOSING QUOTATION.
Bonds & Debentures.					
Exchequer Bonds 2nd issue	-Y-100	-Y-100	5%	March and Sept.	-Y-100.85
Exchequer Bonds 3rd issue	100	100	5%	March and Sept.	,, 99.85
Consolidated Bonds (Seiri)	100	100	5%	June and Dec.	,, 92.10
War Bonds (Gunji)	100	100	5%	June and Dec.	,, 92.10
Imperial 5% Bonds	100	100	5%	March and Sept.	,, 92.00
Special 5% Bonds (issued 1906)	100	100	5%	June and Dec.	,, 91.80
Yokohama Water Works Bonds	100	100	6%	June and Dec.	,, 98.00
Yokohama City Public Loan Bonds	100	100	6%	March and Sept.	,, 99.00
Osaka City Harbour Construction Bonds	100	100	6%	June and Dec.	,, 98.00
Osaka City Public Loan Bonds	100	100	6%	June and Dec.	,, 98.00
Kawasaki Dock Yards Co.'s Debentures	100	100	7%	June and Dec.	,, 98.00
Tokyo Race Associations "	500	500	30%	June and Dec.	,, 100.00
Railways & Electric Trams.					
Tokyo Railway Company, Limited	50	50	4%	June and Dec.	,, 62.30
Yokohama Electric Tramway Company, Limited	50	50	6%	July and Jan.	,, 44.00
Keihin Electric Tramway Company, Limited	50	50	10%	June and Dec.	,, 61.60
Southern Manchurian Railway Co., Ltd.	100	20	6%	June and Dec.	,, 31.00
Hanshin Electric Tramway Co., Ltd.	50	50	12%	May and Nov.	,, 115.00
Cotton Spinnings.					
Kanegafuchi Cotton Spinning Company, Limited	50	50	14%	July and Jan.	,, 104.60
Fuji Gassed-yarn Company, Limited	50	50	14%	July and Jan.	,, 109.55
Tokyo Cotton Spinning Company, Limited	50	50	5%	July and Jan.	,, 51.70
Imperial Hemp Weaving Company, Limited	50	50	12%	July and Jan.	,, 73.00
Nisshin Boseki Kabushiki Kaisha	50	12½	....	——	,, 13.10
Sugar & Beer Cos.					
Dai-nippon Sugar Refinery Company, Limited	50	50	15%	May and Nov.	,, 18.00
Ensuiko Sugar Refinery Company, Limited	50	15	20%	June and Dec.	,, 36.05
Dai-nippon Beer Company, Limited	50	50	15%	July and Jan.	,, 77.80
Kirin Brewery Company, Limited	50	50	6%	July and Jan.	,, 46.00
Docks & Steamships.					
Yokohama Dock Company, Limited	50	33	12%	June and Dec.	,, 56.00
Uraga Dock Company, Limited	50	50	....	July and Jan.	,, 11.50
Kawasaki Dockyard Company, Limited	50	50	12½%	Feb. and Aug.	,, 55.70
Nippon Yusen Kaisha	50	50	12%	May and Nov.	,, 80.25
Hokkaido Tanko S. S. Company, Limited	50	50	14%	July and Jan.	,, 46.00
Miscellaneous.					
Tokyo Electric Light Company, Limited	50	50	11%	June and Dec.	,, 91.60
Tokyo Gas Company, Limited	50	50	13%	July and Jan.	,, 99.70
Yokohama Union Electric Light Company, Limited	50	50	14%	July and Jan.	,, 88.00
Fuji Paper Mills	50	50	6%	June and Dec.	,, 36.00
Otaru Timber Company, Limited	50	50	....	March and Sept.	,, 10.50
Hoden Petroleum Company, Limited	50	50	36%	April and Oct.	,, 100.50
Tokyo Rope Manufacturing Company, Limited	50	50	20%	June and Dec.	,, 103.00
Japan Horse Improvement Company, Limited	50	50	15%	March and Sept.	,, 6.00
Tokyo Stock Exchange Company	50	50	11⅔%	June and Dec.	,, 157.95
Osaka Electric Light Company, Limited	50	50	15%	July and Jan.	,, 125.50
Kobe Electric Light Company, Limited	50	50	14%	July and Jan.	,, 96.50

BANGKOK SHARE QUOTATIONS

(COURTESY MESSRS. EDWARDS & CO., BANGKOK, SIAM.)

NAME.	BUYERS.	SELLERS.	QUOTATION.	ESTABLISHED.	CAPITAL.	NO. OF SHARES.	ISSUE VALUE.	AMOUNT PAID UP.	RESERVE FUND.	LAST DIVIDEND.	WHEN PAID OR PAYABLE.
Siam Electricity Co., Ltd.	Tcs. —	Tcs. 370	Tcs. 370	1901	Tcs. 3,383,296	35,000	£ 10	£ 350,000	Tcs. 448,174.31	12% & 12½ T. bon.	Feb. 29, 1908
Paknam Railway Co., Ltd.	,, —	,, —	,, 185	1893	,, 400,000	5,000	Tcs. 80	Tcs. 400,000	,, 80,000	6% & 2 Tcl. bonus for ½ year ending	Dec. 31, 1907
Siam Tramway Co., Ltd.	,, —	,, 150	,, 150	1905	,, 1,450,000	6250 Shares 7250 Deb. 1000 P. Shares	,, 100	,, 1,450,000	—	2%	Mar. 31, 1908 Sept. 30, ,,
Meklong Railway Co., Ltd.	,, —	,, 105	,, 105	July 12, 1907	,, 2,230,000	22,300	,, 100	,, 2,230,000	17,316.22	—	—
Bangkok Manufact. Co., Ltd.	,, —	,, 130	,, 135	1898	,, 400,000	4,000	,, 100	,, 400,000	—	None	—
Howarth Erskine, Ltd.	,, —	,, —	,, 140	1905	$ 2,400,000	24,000	$ 100	$ 2,400,000	$ 40,000	5%	Oct. 31, 1908
Bangkok Dock Co., Ltd.	,, —	,, —	,, 150	1865	Tcs. 1,000,000	6,000	Tcs. 100	Tcs. 1,000,000	Tcs. 270,000 60,000	12½% & 2½ Bonus	Dec. 31, 1907
Siam Steam Packet Co.	,, —	,, 70	,, 70	1898	,, 190,000	2,625	,, 50	,, 131,250	,, 36,000	14%	Dec. 31, 1907
Siam Commercial Bank	,, —	,, —	,, 1,100	1906	,, 3,000,000	3,000	,, 1,000	,, 3,000,000	,, 140,000	5%	Mar. 31, 1907
Menam Motor Boat Co., Ltd.	,, —	,, —	,, 100	1905	,, 200,000	2,000	,, 100	,, 125,000	—	—	—
Transport Co., Motor, Ltd.	,, —	,, 100	,, 100	1906	,, 200,000	4,000	100	£ 4, per Share	—	—	—
Jenderata Rubber Co *	,, —	,, —	79		£ 17,580		£ 10				
Siam Steam Navigation Co., Ltd.	,, —	,, —	320		Tcs. 2,000,000		Tcs. 200				

*6 Calls paid

PHILIPPINE SHARE REPORT

JUNE 1ST, 1909

Name	When Established	Authorized Capital	Issue Value of Share	No. of Shares	Subscribed	Paid up	Reserve	Working %	Date	Last Dividend	Closing Quotations
American Drug Store	1908	₱ 100,000	₱1,000	100	40	₱1,000	......	₱ 5,000	Jan. 4, 1909..	......	No Sellers.
*Banco Español Filipino	1851	3,000,000	200	15,000	8,439	200	₱225,000	......	......	7% for year 1908....	190 nom.
Benguet Consolidated Mining Co....	1903	2,000,000	2	1,000,000	495,000	2	......	38,000	Feb. 2, 1909..	......	No Sellers.
Benguet Commercial Co., Ltd.	1908	200,000	10	20,000	7,360	10	......	......	......	7% for year 1907	₱10.
Cadwallader-Gibson Lumber Co....	1908	1,000,000	100	10,000	8,650	100	......	......	......	......	No Sellers.
*Camote-Clayton Mining Co.	1909	400,000	10	40,000	20,000	10	......	......	......	......	₱10.
*Compania Maritima	......	1,018,000	200	5,090	5,090	200	......	......	......	......	₱40 buyers
*El Varadero de Manila	......	350,000	100	3,500	3,500	100	......	......	......	......	Sellers 70
Export & Import Lumber Co.	......	200,000	200	1,000	1,000	200	......	......	......	......	No sellers.
*Fabrica de Hielo de Manila	......	350,000	50	7,000	7,000	50	......	......	......	18% for year 1908...	₱80 sellers
*Germinal Cigar Factory	......	500,000	500	1,000	1,000	500	₱285,000	......	......	6% for year 1908 and 6% on capital......	700 sellers
H. E. Heacock Co.	1909	100,000	100	1,000	800	100	......	......	......	First year	No sellers.
*Headquarters Mining Co. (Inc.)...	1908	600,000	10	60,000	35,000	10	......	......	......	......	₱10.
Insular Lumber Co.	1907	2,000,000	200	10,000	9,000	200	......	......	......	......	No sellers.
Juan Seiboth Co., Ltd.	1908	150,000	20	7,500	500	20	......	......	......	First year	......
*La Concha Button Factory	......	75,000	100	750	750	100	......	......	......	10% for year 1908...	₱110 sellers.
Lambert, Springer Co.	1908	200,000	1,000	200	80	1,000	......	......	......	......	No sellers.
Luzon Stevedoring Co.	1909	250,000	25	10,000	4,200	25	......	......	......	First year	......
Newspaper Publishing Co.	1907	400,000	100	4,000	3,740	100	......	......	Dec. 31, 1908.	½ of 1% interim for 1908	No sellers.
Walter E. Olsen Co., Inc.	1909	500,000	100	5,000	2,033	100	......	......	......	First year	No sellers.
Paracale Gold Dredging Co.	1907	£10,000	£1	10,000	9,000	£1	......	......	......	......	£1.10 s.
Palomar Park Amusement Co.	1908	300,000	......	300,000	60,312	.50	......	......	......	......	₱1.
Phil. Hemp Machine Co., Ltd.	1907	1,000,000	100	10,000	8,500	100	......	......	......	......	₱100
Philippine Publishing Co.	1907	600,000	200	3,000	2,181	200	......	......	Mar. 1st, 1909	₱3 a share for 1908..	₱50
Port Banga Lumber Co.	1908	100,000	1.000	100	934	93,400	None.	40,000	First Saturday in January..	None	No sellers.
The Philippine Gold Dredging Co...	1907	200,000	10	20,000	20,000	10	......	......	......	......	No sellers.
*Philippine Co., Ltd.	......	750,000	10	7,500	7 500	10	......	......	......	......	₱5 buyers.
Philippine Rosin & Turpentine Co..	......	150,000	1	150,000	70,000	1	......	......	......	First year	......
The Rosenstock Pub. Co.	1908	75,000	10	7,500	6,000	10	......	......	......	......	No sellers.
*San Nicolas Iron Works	......	300,000	500	600	600	500	......	......	......	......	₱200 sellers.
San Mauricio Gold Mining Co.	1908	4,000,000	200	20,000	......	......	......	......	......	First year	No sellers.
Tarlac Railway Co.	1906	150,000	100	1,500	1,500	100	......	₱9,674.75	June 30, 1908.	......	No sellers.
Union Hemp Machine Co.	1909	50,000	10	5,000	2,600	10	......	......	......	......	No sellers
Zamboanga Cold Storage Co.	1903	40,000	400	100	200	200	₱ 8,500	......	May 1st, 1909.	20%	₱120.

* John T. Macleod's share list

PHILIPPINE BONDS

	Dated	Authorized	Issued	Outstanding	Par Value	Rate of Int.	When payable	Last Quotation
Philippine Friar Land Bonds	Feb. 1st, 1904	$7,000,000	$7,000,000	$7,000,000	$ 100	4%	Feb. 1, 1914	104⅝
Public Works and Permanent Improvement Bonds	March 1, 1905	$5,000,000	$2,500,000	$2,500,000	$ 100	4%	March 1, 1915	104⅝
Do.	Feb. 1, 1906	......	$1,000,000	$1,000,000	$ 100	4%	Feb. 1, 1916	104⅝
Manila Sewer and Water Works Improvement Bonds	June 1, 1905	$4,000,000	$1,000,000	$1,000,000	$ 100	4%	June 1, 1915	104⅛
Do.	Jan. 2, 1907	......	$2,000,000	$2,000,000	$ 100	4%	Jan. 2, 1917	104⅛
*Philippine Railway First Mortgage Fourt per cent Thirty Year Sinking Fund Gold Bonds	July 1, 1907	$15,000,000	$5,736,000	$5,736,000	$1000	4%	July 1, 1937	97

*Payment of interest guaranteed until maturity or redemption by the Philippine Government.

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Cia. General de Tabacos de Filipinas.
Ynchausti & Co.

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Shanghai Electric & Asbestos Co., Ltd.

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Hongkong and Shanghai Banking Corp.
International Banking Corp.
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San Nicolas Iron Works
Babcock & Wilcox (D. W. Bell)

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Green Island Cement Co., Ltd.
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Germinal Cigar Factory
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Siemssen & Co.

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Special Supplement of
THE FAR EASTERN REVIEW
July, Nineteen Hundred and Nine

THE RULERS OF CHINA

THE HOUSE OF CH'UN

THE FATHER OF THE REIGNING BRANCH OF THE GREAT CH'ING DYNASTY

HIS IMPERIAL HIGHNESS, YI-HUAN,
The First Prince of Ch'un. Died, 1891

The Seventh Son of Emperor Tao-Kuang, Father of Princes Tsai-Kuang, Tsai-Tien (Emperor Kuang-Hsu), Tsai-Feng (The Regent and Heir to the Title), Tsai-Hsun and Tsai-Tao. Grandfather to Princes Pu-Yi (Emperor Hsuan-Tung), Pu-Chieh and Pu-Kuang

(From a rare photograph taken in 1885)

His Imperial Majesty, the late Emperor
KUANG-HSU
Second Son of the Prince of Ch'un

His Imperial Majesty, the Regent
Third Son of the Prince of Ch'un and Heir to the Title. Father of the Emperor Hsuan-Tung

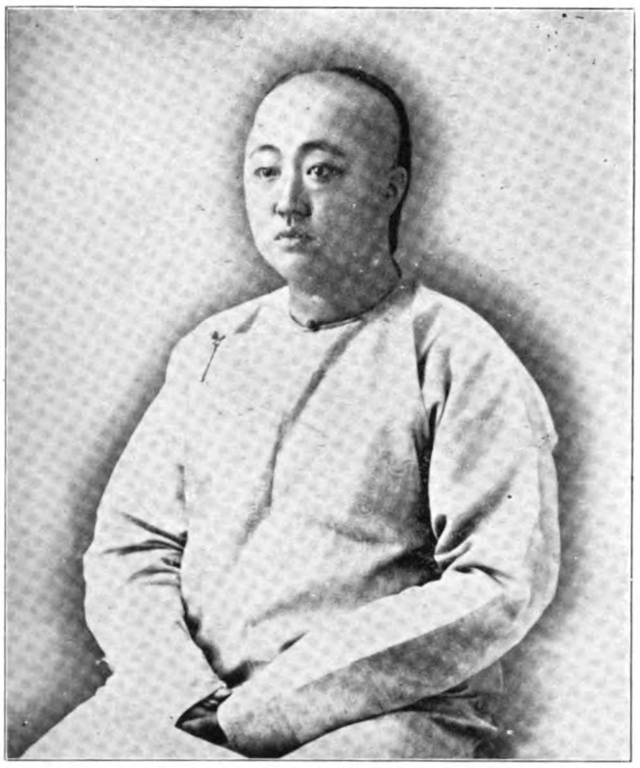
The Head of the House, H. I. H. YI-HUAN
The First Prince of Ch'un. Died, 1891

(From an old photograph)

His Imperial Majesty, the Regent

(From a photograph taken in 1901)

OF CH'UN



His Imperial Highness, Prince TSAI-HSUN
Fourth Son of the Prince of Ch'un

His Imperial Highness, Prince TSAI-TAO
Fifth Son of the Prince of Ch'un

His Imperial Highness, Prince PU-CHIEH
Only Son of Prince Tsai-Hsun. By Imperial Decree he was adopted by his uncle Tsai-Tao who in turn was adopted into a distant branch of the Imperial Clan. This maneuvre eliminated him as a candidate for the throne and left the field clear for his cousin, Prince Pu-Yi. His name has been changed to Pu-Kuang

His Imperial Highness, Prince, TSAI-TAO

THE HOUSE OF CH'UN

The Baby Occupant of the Dragon Throne

His Imperial Majesty (PU-YI) HSUAN-TUNG, Emperor of China, and His Younger Brother His Imperial Highness, Prince PU-CHIEH.—(The Emperor is standing.)

China, Manchuria, Japan, Indo-China, Siam, Straits Settlements, Malay States, Burma, India, Malaysia, and the Philippines

ILLUSTRATED FEATURES Rulers of China.—Reinforced Concrete to Supersede Nipa Construction.—New Manila Hotel.—Headwaters Mining Co.

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THE FAR EASTERN REVIEW

VOL. VI: No. 3. MANILA, SHANGHAI AND YOKOHAMA, AUGUST, 1909. 25 cents U. S. Currency 50 " Philippine Cy.

THE RULERS OF CHINA

The Power Behind the Throne

His Excellency, CHANG-CHIH-TUNG
The Grand Old Man of China, Grand Secretary, Grand Councillor and President of the Board of Education

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COMMERCE FINANCE

Hongkong and Shanghai Banking Corporation

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Sterling Reserve Fund..... $15,000,000

Silver Reserve Fund........... $15,250,000
Reserve Liability of Prop'rs. $15,000,000

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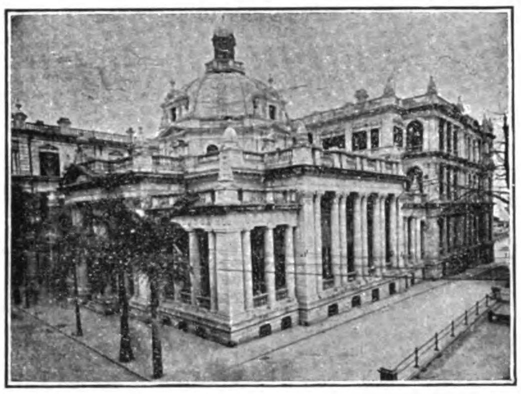

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THE FAR EASTERN REVIEW

COMMERCE ⊛ ENGINEERING ⊛ FINANCE

VOL. VI. MANILA, P. I., SHANGHAI, AND YOKOHAMA, AUGUST, 1909 No. 3.

THE HEADWATERS MINING COMPANY OF BENGUET

The showing of this company after a year's work is most satisfactory and it is now its purpose to proceed to the installation of a mill and cyanide under very happy auspices. The Headwaters Company was organized in July, 1908, and secured control of 12 claims in the district of Antimok about one-half mile above the Bua Mining Company property and the Benguet Consolidated mines. Two ledges were opened up and varied samples taken showed a prospective value of from about $10 gold a ton. This showing was the basis of the sale of stock to the amount of ₱25,000, half of which was taken in Hongkong and the balance in the Philippines.

Serious development work dated from the latter part of August and continued from that date under the most economical direction. Only one white man, and in a supervising capacity, was employed, while a force of 50 natives was continually on the pay roll.

Instead of but two ledges, five leads were soon uncovered and the work concentrated on three of the most promising. The result of the work for the year is 3,000 feet of drifts and cross-cuts with approximately ₱500,000 worth of ore in sight.

The ore values realized, as shown from assays taken from these three main drifts, far exceeded expectations and more than fulfilled the promise of the first prospectus issued. The average value per ton of six assays each taken from different parts of the three main levels were respectively as follows:

No. 1, $25 gold; No. 2, $16.53 gold; No. 3, $13.10.

The following excerpts from the report of the consulting engineer, Mr. C. M. Eye, manager of the Benguet Consolidated Mining Company, gives a very complete review of the operations with reference to the above assays which were the result of a series made by him and may be taken as indicative of the general average values found in the three levels. He writes:

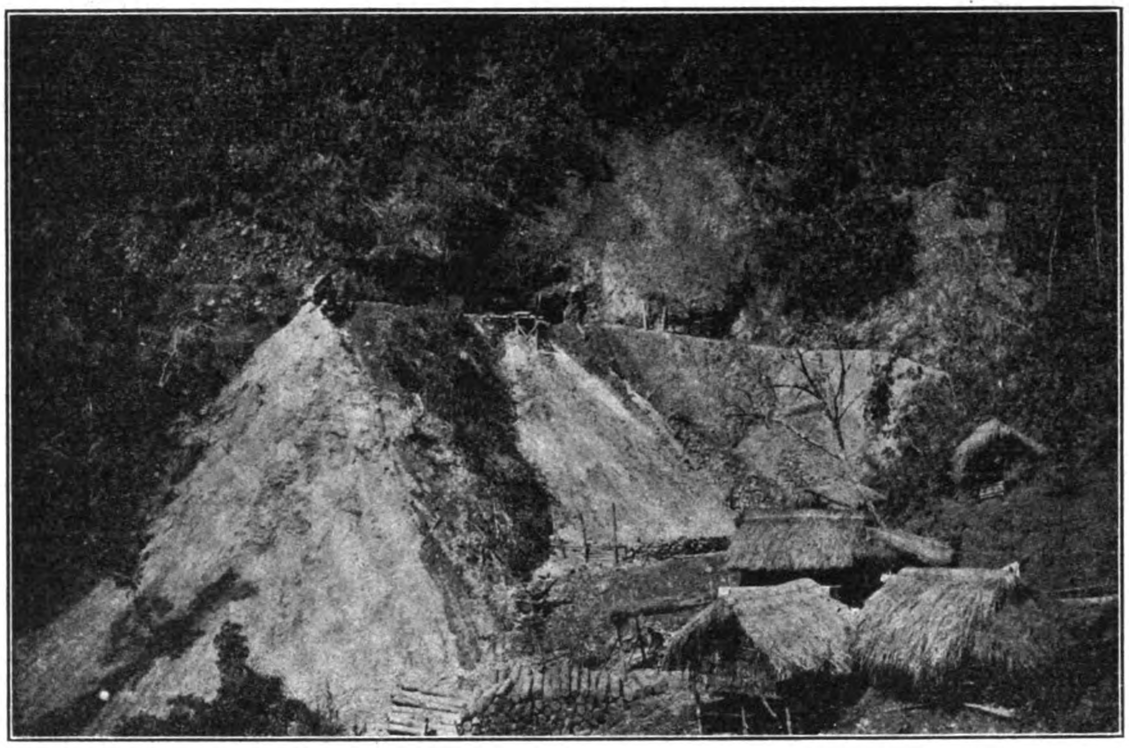
"I am sending you herewith appended, a list of samples with assay results, taken by me at your Headwaters property, the first seven being taken on June 27 and the last seven on July 15th, 1909. I am sorry that neither my lack of time to undertake it, nor the extreme difficulty, owing to the conditions existing, permitted me to make the thorough examination which would have been necessary as the basis for a complete report on the value of the property.

"In view of the foregoing, I hope that the results of the sampling will be taken at their true value as indications here and there of what you have opened up. My general conclusions from them are:

"First.—That your best values as a rule are associated with calcite and manganese oxide, these two gangue minerals being associated together almost if not quite invariably wherever they occur throughout this district, and almost invariably with good gold values. Moreover, it is a very favorable ore for milling, containing as it does an excess of alkali which is advantageous in cyaniding, and yields a better percentage by amalgamation than the quartz-pyrite ore of the district. The ore of the Comote-Clayton and of the Bua are of the calcite-manganese oxide class, and it is my belief that they belong to a separate and distinct vein system from the other leads of the district. This occurrence, then, of that class of ore in large quantities in the three principal tunnels on your property and lead, I regard as a very favorable and valuable feature.

"Second.—My second conclusion is that you will find your bodies of pay ore in lenses, and that in these lenticular shaped masses, you will find the values rather erratically distributed, even though the whole may be good pay. The manganese and calcite will be your best indicator I think.

"Third.—I think, that although you have not as yet demonstrated it in your workings, the various lens shaped bodies will be found to be connected in the vein by a minor width of



PORTAL AND DUMP OF REEF NO. ONE EAST CAMP HEADWATERS MINING COMPANY'S PROPERTY

(Continued on page 102.)

THE FAR EASTERN REVIEW

GEO. BRONSON REA, M. E.

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MANILA MERCHANTS VERSUS INSULAR BUREAU OF SUPPLY

On August 10th, Acting Governor-General, W. Cameron Forbes appointed a committee of three officials of the Insular Government to examine into the operations of the Insular Bureau of Supply with special reference to its inter-bureau relations and to make such recommendations as the members of that body might decide, were for the betterment of the service. The members of this committee were also instructed to inquire into the question of cost to the government of supplies purchased direct from the manufacturers through the Bureau, as compared with such purchase from local merchants.

As evidence of the Acting Governor-General's policy in regard to this important subject, the following excerpt from Executive Order No. 67 issued by him appointing the committee is quoted:

"It is believed desirable that local merchants should be encouraged to carry as large stocks as possible, and that wherever possible the Government should draw its supplies from those held by the dealers rather than carry a large reserve which is not available for use by the community, and that the holding of two reserves—one by the Government and one by the merchants—is probably not the best economy in a country situated as this one is.

"The committee will, therefore, take up and report upon the relation between the Bureau of Supply and the commercial community of the Philippine Islands; will report fully upon the costs of the operation of the Bureau of Supply, including all the elements actually entering into the ultimate cost of operating the bureau, and will report all the articles which it will be advantageous to purchase in the local market, and what articles it is best to continue to purchase from the United States or foreign countries.

"Upon these questions the committee will give hearings to the Purchasing Agent and such representatives of the business community as desire to be heard. It will make a full report of the finding, and will submit with it all the evidence taken."

The merchants have long claimed that, without discrimination in freight, insurance, and other charges, they could furnish supplies as cheaply and effectually as the Bureau of Supply, while the Bureau has contended that the opposite is true and that many hundreds of thousands are saved annually to the government by the centralizing of purchases of supplies for all the different bureaus of the islands. For the purpose of making a thorough investigation, the Acting Governor-General has invited the merchants of Manila to present their case through a representative committee and has expressed a desire to have every item of data bearing on this subject pro and con submitted so that the Governmental Committee may proceed intelligently.

Some idea of the operations of the Bureau may be gathered from the following excerpt from the report of the Secretary of Public Instruction for the year ended June 30th, 1908:

"The purchases made by the bureau of supply during the past year totaled ₱3,718,240.70, of which ₱2,659,543.31 was expended in Manila, ₱993,588.36 for those purchased in the United States, and ₱65,109.03 for purchases made in China, Japan, Europe and elsewhere.

"In the amount of purchases made in the United States are included ₱56,407.42, paid by the Bureau of Insular Affairs at Washington for school books; ₱76,425.04 paid for special supplies for the Bureau of Printing; ₱133,999.70 paid for ammunition and clothing for the Philippines Constabulary; ₱315,603.44 for bridge material and construction supplies; ₱33,018.50 for special agricultural and road machinery, and ₱12,022.98 for special chemicals for the division of cold storage, the foregoing supplies not being obtainable in sufficient quantities in these islands.

"The sales made to the various bureaus of the insular government during the past fiscal year amounted to ₱3,417,393.62 and to the provincial and municipal governments, ₱858,596.62, a total of ₱4,275,999.23.

The value of the stock on hand on June 30th, 1907, was ₱1,217,010.38 and on June 30th, 1908, ₱1,173,716.10, or ₱43,294.28 less.

The percentage of cost of operation calculated upon the amount of sales for each fiscal year follows: 1902, 16.51 per cent; 1903, 15.52; 1904, 12.49; 1905, 12.50; 1906, 10.92; 1907, 10.77; 1908, 8.62.

On the other hand, the merchants claim that in all the reports of the Bureau of Supply, no allowance has been made for depreciation in the value of much of the stock forming assets of the Bureau, and that the figures submitted in the report of the director as to this value would not be borne out should the government attempt to realize upon it. That if a proper percentage for depreciation were written off the stock in the godowns of the bureau, it would greatly enhance the average cost of the articles supplied the government.

The merchants also claim that the advantage of lower freight rates, insurance rates, etc., is unfair discrimination against the Manila merchant and that the difference in rates given the insular government is inconsistent with the policy of the administration at Washington in the matter of rebates by common carrier and discrimination by insurance companies. They claim that in the matter of these charges, they should be protected against this discrimination by the government instead of finding in the government a competitor taking every advantage of these preferential rates.

In a general way, the merchants claim that, given an equal opportunity with the Bureau of Supply in the matter of rates, allowance for depreciation in values, of landing charges, and facilities of a public character, together with such allowances in time for the consideration of bids as good business judgment would warrant, they could supply the government as cheaply if not at less cost covering a series of years than the Bureau.

The following from the report of the Director of the Bureau of Supply for the year ended June 30th, 1908, covers fully the position taken on this subject by Major Shields:

"In connection with the above report, and in view of frequent efforts of some bureaus and provinces to buy independently, as well as suggestions from disinterested dealers in Manila, that the government should have all purchases for public use pass through their hands, I take the opportunity of giving the following short synopsis of a more lengthy argument made by me upon the subjects in a special report:

"The Bureau of Supply, a government central purchasing agency, was established because it was believed to be both a necessity and an economy. This belief was founded upon certain general principles and conclusions drawn from acknowledged principles and long experiences, to wit:

"1. Consolidation and concentration, in production, manufacture, and distribution, by use of greater capital, saving of waste in time and material, use of the combined knowledge and experience of individuals, and a dozen other important factors too well known to be enumerated, work for economy.

"2. Consolidation and concentration, by increasing responsibility while decreasing the number of those responsible, renders more easy supervision and systemization, therefore, working toward the elimination of graft, dishonesty, and favoritism.

"3. The cost of the government is primarily an expense, not an investment, and decrease in the cost inures to the benefit of all. Hence, in these expenses, which most closely resemble investments, it is generally bad economy that a few should benefit at the expense of all, and particularly so when the benefit to the few is only a fraction of the total cost to all.

"4 The capital invested in importing and manufacturing in the Philippine Islands, the credit which importers are able to obtain in the United States and foreign countries, and the facilities for handling large orders, are not and have not been for the last seven years sufficient to enable Manila merchants to handle government business economically.

"5. The desire evinced in some quarters to have the government distribute small retail

orders by having each bureau purchase for itself and the purchasing agent buy only for immediate consumption, certainly does not arise from the conviction that such course will save money for the whole people and decrease taxation.

"6. In weighing the motives of one engaged in trade who suggests a course of action which affects his own welfare, it is not good common sense to credit him with altruism rather than self-interest except upon strong evidence.

"7. If ten different bureaus desire different quantities of the same articles, it is cheaper to buy the total quantity in one purchase than to buy in separate lots, and if it be desired to keep a month's or a year's supply on hand ready for issue, it is cheaper to keep it at one place under single supervision than in ten different places under separate supervision.

"8. Prices and the cost of transportation, handling, supervision, storage, and delivery, do not increase in the same ratio as quantity. Hence, wholesale prices are lower than retail.

"9. Knowledge is the growth of experience which is in proportion to opportunity, and the knowledge and ability to perform service of a general agent is usually greater than the sum of the knowledge and ability of his separate clients, and vastly greater than that of any one of them.

"Organized in consequence of the belief in its necessity and economy, the bureau of supply, though hampered frequently in the exercise of its full power for good, has, by its seven years of experience, been able to accumulate data which are sufficient to prove the following propositions viz.:

"1. The Bureau of Supply can and does import, store, and deliver goods at less cost to the government than the same services can be rendered by individual merchants because of its lower freight rate, lower insurance rate, lower brokerage rate, lower depreciation cost, and lower administration cost, in addition to the advantages of larger capital, larger purchases, and absence of selling expense.

"2. When the Bureau of Supply, in pursuance of instructions, has ceased importing, carrying, or buying in Manila in large quantities, certain lines of goods upon representations that Manila merchants would furnish them from their stocks at reasonable prices, the prices charged have as a rule consistently advanced and the cost to the government has increased, notwithstanding the fact that the cost of production and importation has not increased.

"3. Frequently, when the policy above mentioned has been followed, the government has been unable to secure the goods in Manila even at the advanced price without long and expensive delay.

"4. Half of the capital of the Bureau of Supply is continually advanced in behalf of debtor bureaus and serves to save appropriations, thus performing the same service as if it were returned to the general fund and taking out of general cost calculations the item of interest upon capital to that extent.

"5. As a rule wherever authority to purchase, without the intervention of the purchasing agent, is given to individual bureaus, the total cost to the government is increased. This might be predicated from the general principles above laid down and experience proves that most bureaus consider it a gain if they can purchase at any price less than 10 per cent above Bureau of Supply cost price. They are urged by the desire to make a better showing for their own bureaus and do not take into account the fact tha tthe expenses of the Bureau of Supply are in the nature of a fixed charge to be met in the last analysis from the public revenue and that any price above the cost price to the Bureau of Supply occasions loss to the government as a whole.

"6. The centralization of buying under one head has produced, in the seven years during which it has continued, an accumulation of data upon methods of transportation which, rendered accessible by classification and indexing, is available at any time and can be used by anyone, thus supplying in more certain form and with greater exactness, information which ordinary dealers can only obtain from highly trained and expensively paid experts.

"7. The necessity for a centralized purchasing department requires the organization and payment of some staff. Every increase of value of business is thereafter handled at a less amount of cost.

"8. The Bureau of Supply is better able to handle a large business in the future than ever before and has, for the next fiscal year, made arrangements for saving expenses by securing a reduction of freight rates from the United States to $6 per ton and the handling of cargo from lighters by means of a steam crane."

The Manila merchants realize that it is the duty of government officials to expend the taxpayers' money to the very best advantage, and we believe it is their purpose to demonstrate that they are prepared to supply the goods directly to the government at prices that compare favorably with the general average of those offered by the Bureau of Supply.

Through the interest shown by Acting Governor Forbes, the opportunity is now afforded for the merchants on the one hand to substantiate their claims and for the Bureau of Supply to demonstrate the advantages to the government of a central purchasing and distributing bureau on the other. We understand that the whole matter will be threshed out thoroughly without the slightest prejudice on either side and with nothing withheld that would throw light on this important subject

There is no desire apparently on the part of the merchants to exclude government supervision of purchase of supplies so necessary to the protection of the government against possible combinations. Conditions in the Philippines, however, have changed materially during the last ten years and competition in all lines is becoming keener as the years pass. With the improved reciprocal relations with the United States and the bright prospect for material development in every line of trade, the patronage of the government even on a small margin of profit would greatly assist the merchants in carrying larger stocks and aid them in extending their operations.

We feel certain that this investigation and discussion shall prove of the greatest possible benefit to both government and merchants and promote a better understanding between the government and the commercial community in the matter of reciprocity of interests.

THE PASSAGE OF THE PAYNE BILL

President Taft has evidenced his interest in the Philippines by the persistent and successful campaign in favor of reciprocity between the Philippines and United States, which, with the exception of the free and unlimited admission of sugar and tobacco, was provided in the Payne Bill as it became law. The import of Philippine tobacco into the United States was restricted to 150,000,000 cigars and of sugar 300,000 tons yearly. This assures great activity in each of these industries and there is no doubt but that in the near future when an adjustment is made in conditions affecting the tobacco trade in the United States, and it is realized that the industry there will not be injured by the limit in importations from the Philippines, that the restrictions will be removed. The same may be said about sugar. The increase of the consumption of these products in the United States is greater than the increase of production, and the Philippine products will yet be welcomed to make up the deficiency. This will mean great activity in these two particular branches of industry in the islands, and there is little doubt but that the next few years will be marked by the investment of large sums in these industries and in the sister industries that must follow.

But the many minor native industries, in which the greater number of the natives of the islands are interested, must find in the free trade relation with the United States, a great impetus to greater activity. We have in mind a number of those industries that have never been properly organized or directed. For instance, the many handsome fabrics woven by hand or by the most obsolete methods from different fibers. These fabrics are in great demand throughout the United States and Europe, but it is impossible at the present time for any exporter to make definite contracts for future delivery or to be assured of any fixed supply. The industry is not organized, nor does there seem to be an inclination among the natives to meet a growing demand for these fabrics. This industry offers splendid returns on investment provided, however, that the directors of such enterprise have the patience to study the native character, the peculiar conditions, under which the natives interested in these industries are living and working and win their confidence and co-operation.

Already a mining boom is well on the way. Paracale and Benguet districts have been producing gold in paying quantities for several years, and the surface of the mineral wealth even in these two districts has not been scratched. On the other hand there are thousands of acres of mineral lands unprospected and many districts where a large amount of capital is being expended under wise and economical direction in uncovering paying deposits. The islands are ripe for capitalists who desire large returns in winning gold and copper in the islands. That is now an assured fact. Most conservative representations of the mineral deposits have been made by the REVIEW from time to time. but our expectations have been more than realized. During the last three months more than $3,000,000 has been pledged to develop the Paracale placer and quartz deposits and the greater part of local capital available for investment is going into mining development. The Americans and foreigners in the islands are full of confidence in the future of mining in the Philippines, and are not hesitating to invest in enterprises as they are being promoted. This confidence is being slowly imparted to capitalists outside of the islands. New Zealand capitalists were the pioneers in Paracale and now that they have made good, American and British capital is becoming interested.

The lumbering industry has made rapid strides during the year, and many plants are being installed to keep pace with the growing demand for the exquisite hardwoods of the islands. Indeed, there is no more favorable opportunity for investment, to our knowledge, anywhere in this industry than in the Philippines. Modern methods of forest transportation have solved to a large extent the labor problem, and reduced the average cost of operation, so that the margin of profit is sufficient encouragement without the bright prospect of expansion of trade with Europe and America that is assured.

Altogether, with legislation favorable to the development of agricultural lands and amendments to the present mining law in order that the prospector may not be hampered in his work together with a steady market now assured for every product that may be grown in the islands, all that is now needed is the necessary capital and the industry of the native population to make the islands blossom as the rose.

THE MANILA CARNIVAL

Mr. J. C. Mehan has been selected as Director General of the Philippine Carnival Association, and he will have entire charge of arranging for the next carnival, which is to be held from February 5 to 9 next year.

Manila's carnivals have now become famous and they rank well up with such spectacles in Europe and the United States, and the Association is to be congratulated upon its wisdom in selecting Mr. Mehan to manage the next carnival.

The plans for the next carnival include an industrial exposition for the first five days of the show, and the rest of the nine days will be given over to fun. It is now an assured fact that a large number of visitors from all parts of the Far East, as well as from the United States, Hawaii, and Australia will be in Manila during the festival season.

THE HEADWATERS MINING COMPANY OF BENGUET

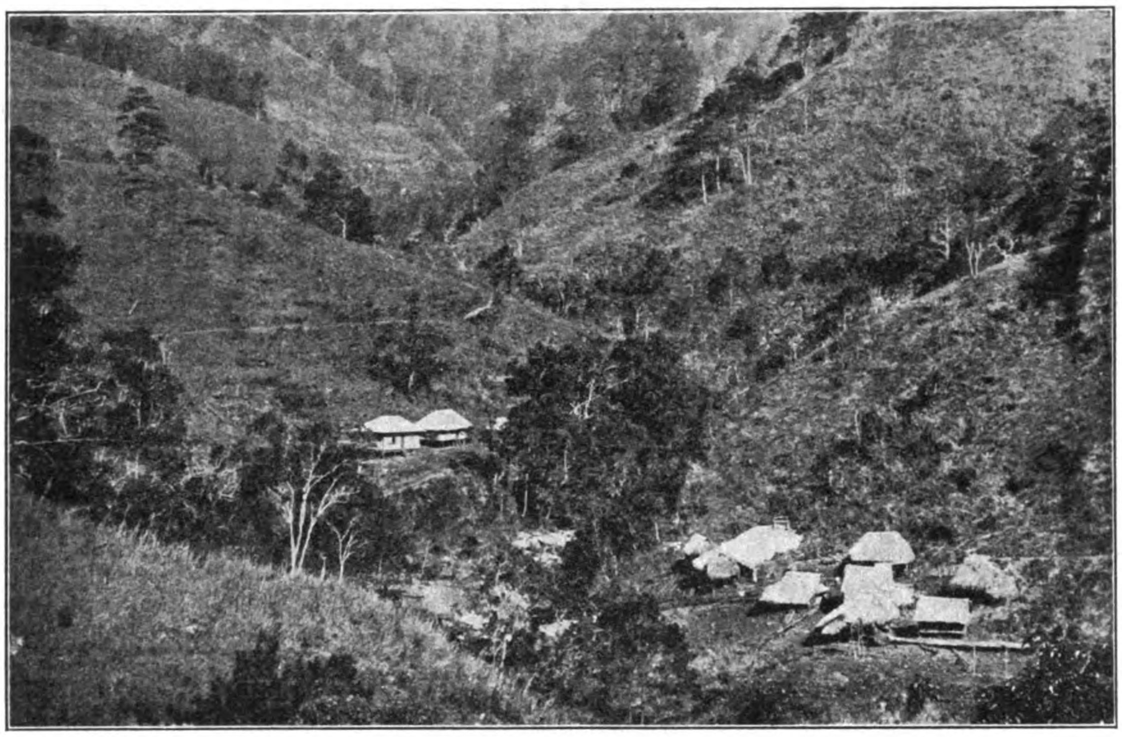
(Continued from page 99.)

lower grade quartz and pyrite ore, though even this is not of the same character as the regular quartz and pyrite veins of the district. (Indeed, it is not necessary to leave your property to find an example of the other class of vein I refer to, for you have one on which considerable work has been done with, I understand, fair milling values. This vein has an entirely separate dip and strike from your principal vein and its filling seems to be hard quartz with enclosed pyrite where it is pay. There is also a noticeable difference in the physical character and appearance of the gold from it.)

"Fourth.—Your work has demonstrated that the limits within which you have bodies of pay on the lead, are wide and far apart. Though I have personally made no measurements, yet from the mouth of No. 1 level to the face of No. 2 level must be fully 2,000 feet, and it is by no means to be assumed that there is no pay to the west of the former or to the east of the latter. Regarding the possible extension to the east, I do not give much weight to the result on E. H. No. 1, as it is very near the surface, (surface values almost invariably being poor in this district), and is evidently not on one of the calcite bodies, though evidently on the lead. There is a vast amount of ground to be prospected to the east of No. 2 level, and I would advise the continuation of this level with raises at frequent intervals.

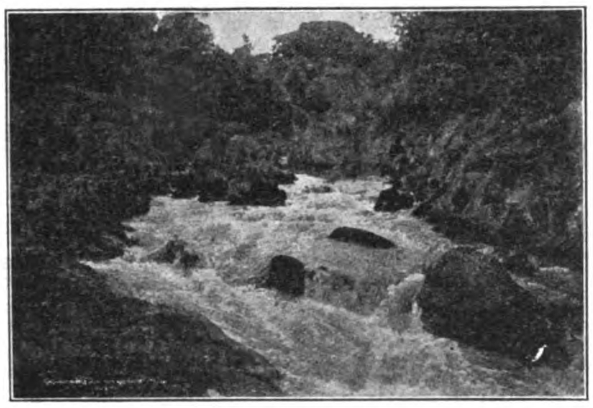
"Fifth.—As regards the question of ore reduction, while no one can tell in advance, in the absence of tests, just what line of treatment will give the best results, I say that a grinding mill of the Huntington type for the reduction, and a treatment consisting of amalgamation, followed by fine grinding and treatment of the whole product by agitation with cyanide and separation by a modern canvas filter, (probably of the Ridgeway type), would be the most beneficial. As regards the question of when a plant should be put up, while I regard it as the only really safe plan to have two years ore supply blocked out or available, (or enough to pay for the minimum sized plant in case no more ore should be found), yet mills are often put up on mines with poorer showings than this one, and win out. I would prefer to see considerably more development work done on this mine before a mill is installed, (especially in the way of sinking and raising), for then a considerably larger mill might be erected, with lessened cost of operation and consequent increased profit, but if it is desirable for financial reason to put in a small mill to start with, at the same time going ahead with the development, then I should say that I do not think that with the high grade ore known to exist in fair quantity in the mine there would be much risk in putting in a small mill, of say, 30 or 40 tons per day capacity. I should say that it should be possible to bring in and erect a mill of the style I have described, in first class style, (though with wooden foundations rather than concrete), the mill to be driven by water power, of which there is a good supply available up to at least 50 H. P. I might also say that this mine is unusually well situated as regards timber supply and accessibility to the town of Baguio.

"The problem of providing a suitable area for a settlement of native and other employees will be easy, for there is a good flat adjacent to the mine, a rare thing in this Benguet country. There is a splendid mill site within easy access, and it is possible to so open up the mine by a working tunnel and underground hoisting sys em that continuous and steady operations may be assured. I might say that this mine has every feature in its favor. The whole question rests with the mine itself, and to demonstrate the ultimate value of this, you will have to do what we all of necessity must do—spend the necessary money to open it up with depth. I have a deep and abiding faith in the future of the mines in this Antimok district, and I expect to see them continue strong and good with depth, but none of us know yet and it is up to us to find out."

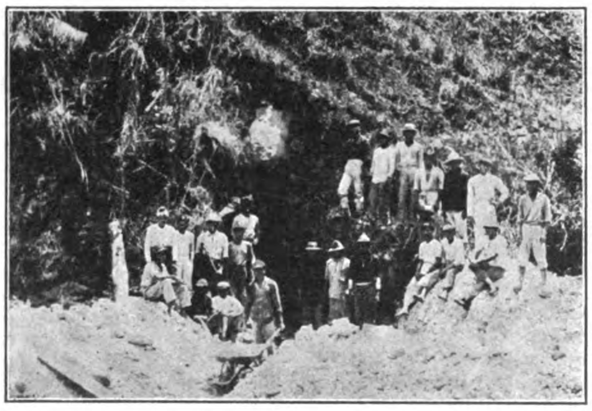


VIEW OF WEST CAMP.

PORTAL OF CRESCENT REEF NO. 3, HEADQUARTERS

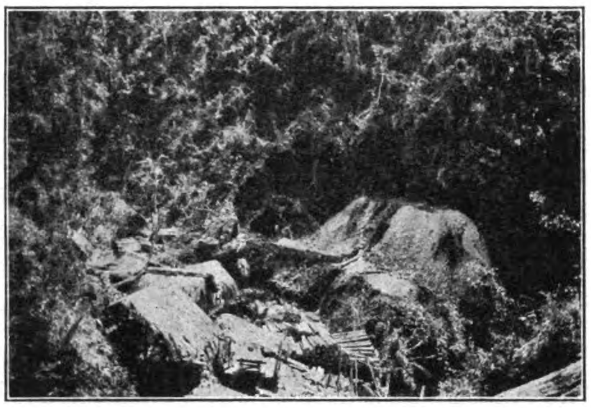


WATER POWER



NATIVE MINING AT PORTAL NO. 3, HEADQUARTERS

It is now the purpose of the company to place 22,000 shares on the market, the proceeds to be utilized in installing a 60-ton per day milling plant and a cyanide plant and to continue further the development of the mine. These shares are offered at par value of ₱10 each.



FIRST AND SECOND LEVELS REEF 2, HEADQUARTERS

The officers of the company are: President, F. Stuart Jones, Esq.; Directors, H. Phelps Whitmarsh, Esq.; H. T. Fox, Esq.; L. O. Hibberd, Esq.; and W. H. Lawrence, Esq.; Secretary, F. J. Highham. The Manila address of the company is No. 16 Carenero and the mine office at Baguio, Benguet.

*OIL FIELDS OF TAYABAS PENINSULA

Doctor George I. Adams, geologist of the Division of Mines, has just returned from a reconnaissance in the Tayabas Peninsula and has brought back samples of the oil which were collected with special care for the purpose of analysis in the laboratory of the Bureau of Science. The collecting of these samples was one of the important aims of his trip, since the analysis of samples submitted by private parties showed the oil to be of such a high grade that capitalists believed that it had been "doctored," and accordingly would not take an interest in developing the field.

The crude petroleum from Tayabas Peninsula has a very light specific gravity and only two or three fields in the world produce an oil comparable with it. It is very desirable for distillation since it contains an unusually high percentage of gasoline and kerosene and it should accordingly command a high price in the market.

During the reconnoissance oil seeps were seen in three distinct localities. On the Ajus River, which reaches the coast between Catanauan and Mulanay, there is a place where when a pole is sunk into the bed of the river oil rises to the surface and flows down the stream in irridescent patches. At this place mining locations have recently been made. The second locality where oil seeps were seen is in the valley of the Vigo River. The oil, accompanied by some gas, rises to the surface when a pole is thrust into the bed of the stream and this fact has led to the drilling of a well 21 meters deep which encountered some oil. Nearly the entire valley of the Vigo River has been staked as oil claims.

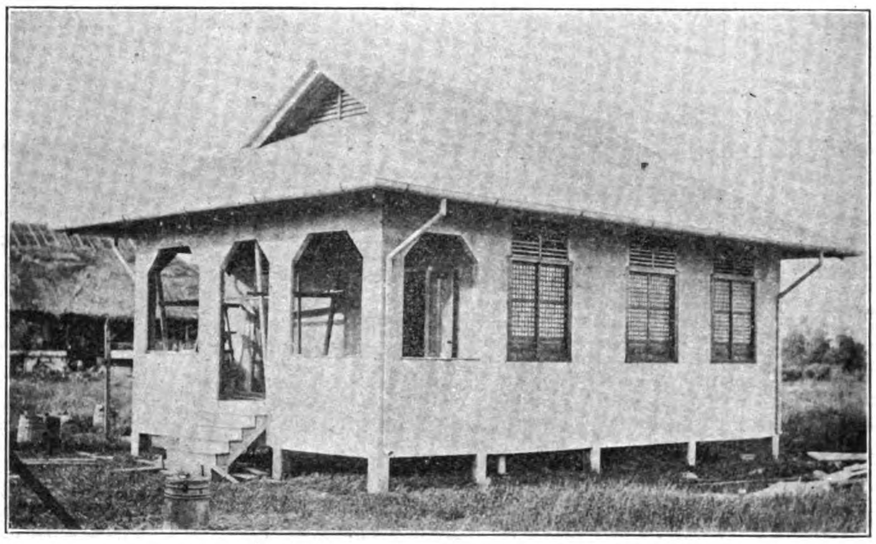
On the Bahay River there is a place where at any time the oil may be seen rising to the surface of the water and flowing down the stream. Nearby there is a well about 40 meters deep which encountered a fair showing of oil. The valley of the Bahay River is likewise staked as oil claims. The fact that the three localities visited are already entered as mining claims should not deter others from investigating the peninsula. There are known to be many other oil seeps and small gas vents so that the territory which may be prospected with reasonable chance of success is large, in fact the whole peninsula, which is 100 kilometers long, is worth an investigation.

The study of the geologic formation made by Doctor Adams showed that the peninsula is anticlinal in structure. However, it should not be inferred that it is a perfect anticline, but rather an upward flexing and folding of the sandstones, shales, and limestones which has resulted in some places in faulting and a repetition of the beds. The shales in places are highly carbonaceous and the sandstones are suitable as reservoirs for oil and gas. The thickness of the beds will undoubtedly aggregate more than a thousand meters. The higher formations in general are the limestones which form ridges running from northwest to southeast with the trend of the peninsula. The sandstones and shales usually outcrop in the lower ground. There are many good exposures along the beds of the streams and in some cases on the higher slopes, but the ridges are covered with timber and the rolling country with cogon grass so that it would require careful study to work out the details of the structure. In many cases the dip of the beds is 45 degrees or more. Aside from looking for showings of gas and oil the prospector should study the dip of the rocks and endeavor to find an area where the beds are relatively flat in order to have favorable conditions for developing the field by drilling.

Transportation to Tayabas Peninsula is not difficult, although it is rather indirect. At present a contract steamer calls at Catanauan at intervals of ten days and there are several freight steamers which call at this port and others at irregular times. The trails of the island are suitable for hiking during the dry weather. During the rainy season it would be well to use carabaos and usually these can be obtained without much difficulty. From Catanauan the peninsula may be crossed by trail to San Narciso, but the easier route for visiting the prospects above mentioned would be to follow down the coast from Catanauan to Mulanay and the Ayoni Valley and thence across to the Vigo River, following down that stream to near the coast and then turning southward to the Bahay River. From Catanauan to Bahay River the time required ordinarily would be about three days traveling with carabaos.

Dr. Adams has made special reports on the oil fields of Texas, Indian Territory and Kansas for the U. S. geological survey, and his opinion in regard to the importance of the oil showings in the Tayabas Peninsula is that they are fully as encouraging as those which have led to the bringing in of successful wells and the exploiting of large fields in the United States. It is his opinion that while prospecting for oil is always attended with a certain degree of risk the conditions in the Tayabas Peninsula are such as would readily lead oil men to invest their money in the development of the fields if they could be induced to visit the place and see for themselves.

*Bulletin Philippine Division of Mines.



HY-RIB COTTAGE, PASAY, MANILA, P. I.—PLASTERING FINISHED

HY-RIB CONCRETE HOUSE FOR THE TROPICS

The recent completion at Pasay, Manila, of a new type of dwelling is a most important pste in the right direction for solving the question of a suitable and economical substitute for the ordinary wood constructed building for tropical and semi-tropical countries.

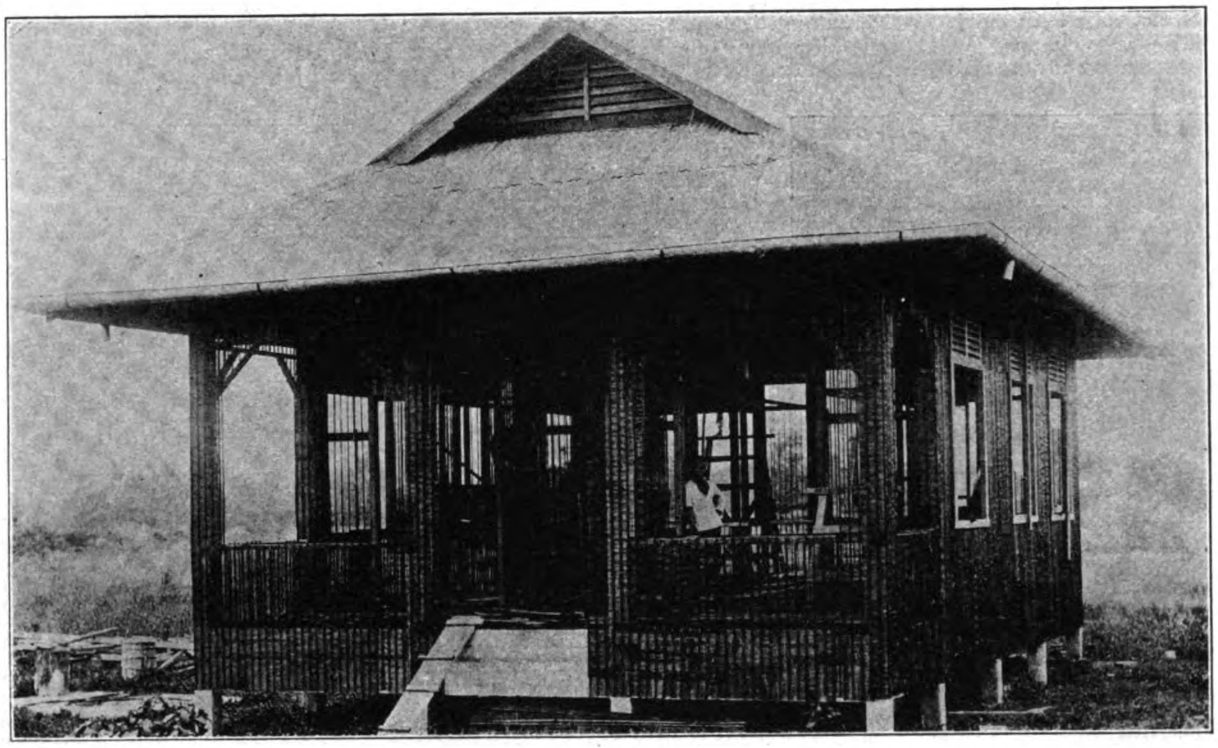
There is practically no commercial timber to be found that is anay proof and it is only a question of time when all our wooden buildings, if they are not constantly repaired, become a menace to public safety. The present native house will call for still further investigation. While the native can build a house which for cheapness cannot be compared to any other, it is far from meeting all requirements. We believe that, especially in the larger cities and towns, where the fire risk in native quarters must be considered, and where, moreover, the liability to epidemics is a constant menace to the whole community, the introduction of a low-priced, fireproof, and sanitary house is rapidly becoming a necessity.

For such a structure no material is so well adopted as reinforced concrete.

This is rapidly becoming the only building material extensively used in our larger and better class of buildings. For small dwellings, however, it has not as yet been so successful.

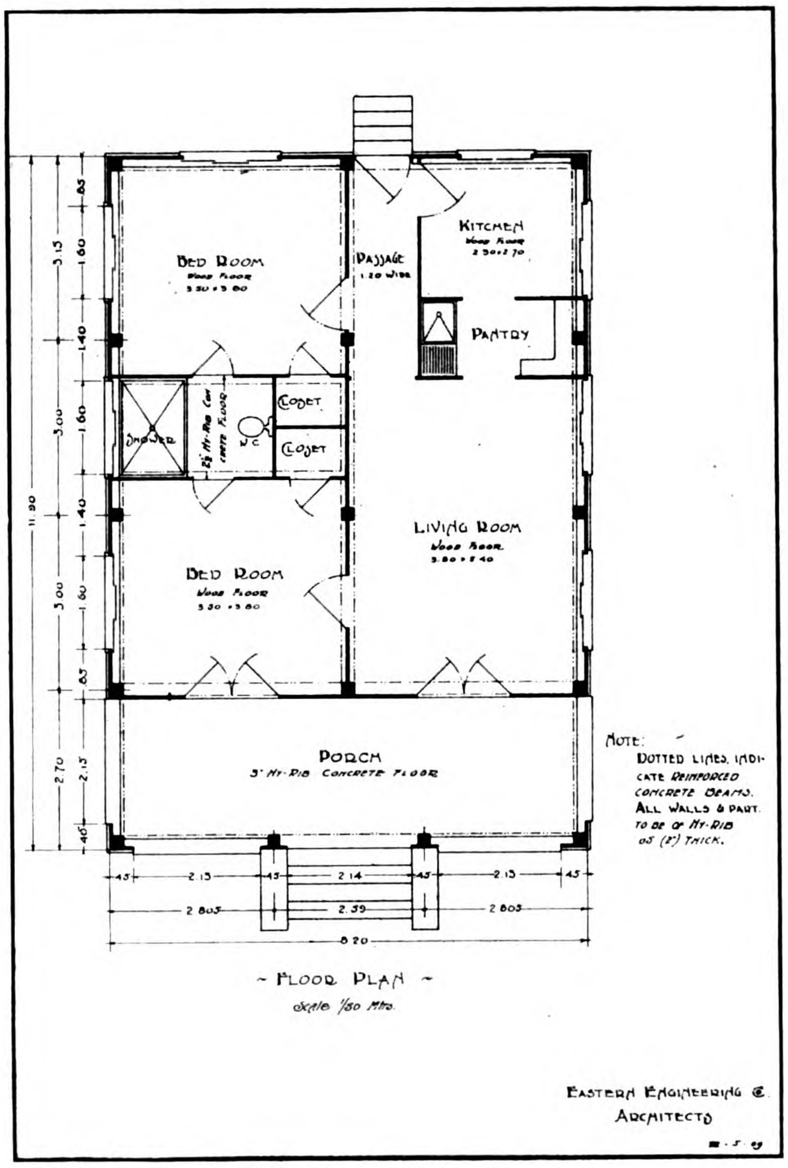
In the Pasay house referred to above, concrete has played a very important part. All the heavy framing is of concrete, as are also all walls and partitions. The house is supported on 10″×10″ concrete posts resting on 18″×18″×10″ footings. These posts above the floor line are 8″×8″ concrete supporting the roof framing. Reinforced concrete beams supported by the posts carry all floor joists. This makes the structural part of the house both anay and fireproof.

The main feature of the house, however, is the wall and partition construction. These are built of Hy-Rib sheathing plastered with cement mortar 2″ thick. This Hy-Rib Sheathing consists of a steel lath surface stiffened by rigid high ribs. The ribs and lath are manufactured from a single sheet of steel making it a complete unit of lath and studs. These ribs or studs are 13-16″ high and 3½″ apart. The Hy-Rib is nailed or wired to the supports and cement mortar is then plastered on it with an ordinary plastering trowel. The lath side is first plastered, scratched, and allowed to set. The other side is then treated the same way. The finish coats are then applied to both sides. This gives a reinforced concrete wall which may be made to vary in thickness from 1⅛″ to 2½″ or 3″ as conditions warrant. The Hy-Rib is completely embedded in concrete and the life of the wall



HY-RIB CONCRETE WALL AND CONCRETE FRAME COTTAGE, PASAY, MANILA.

E. E. Calvin, contractor, Eastern Engineering Co., architects. A. D. Gibbs, owner.



is therefor practically indefinite. No form work is required for this class of concrete wall thereby cutting out what was formerly one of the most expensive features of concrete wall construction.

The cement mortar used for this plastering consisted of the following:

G. I. Portland Cement. . . .2 parts.
Sand. . . . . .5 parts.
Lime Putty. . . . . .1 part.

The finish work was protected from too rapid drying and the direct rays of the sun by means of damp burlap and sprinkling. This was continued for three days after plastering was completed.

The outside dimensions of this house are 39′ 0″ × 26′ 6″ including the 6′ 0″ porch on the front. There are one living and dining room, 2 bed rooms, together with the bath room, kitchen and pantry, and rear hall. The floors, except the bath room and porch, are of the ordinary wood construction, with the joists resting on the concrete beams mentioned above. The ceilings are of suali.

The bath room and porch floors are of concrete, reinforced with Hy-Rib. The cost of form work was again saved here as the Hy-Rib is self centering. It was placed between the supports, giving 6″ bearing on each beam, with the lath side down. The concrete was then dumped on and troweled off to the required thickness.

After the conrete slab had set, it was plastered on the under side so as to protect the Hy-Rib from corrosion.

For the native house, concrete floors could be used thruout, giving the best of sanitary and fireproof conditions.

The cost of the Pasay house complete was approximately $1300 gold, including plumbing.

This house was built for Mr. A. D. Gibbs by Mr. E. E. Calvin. The Eastern Engineering Company were the Architects.

RULERS OF CHINA

H. E. CHANG CHIH-TUNG,

The Grand Old Man of China.

His Excellency Chang Chih-Tung is considered the most erudite scholar of the Empire, and by some her foremost diplomat, but if we accept the opinion of the *London Times* Correspondent, the appellation of "The Grand Old Man of China," is far fetched and instead, his sobriquet should be "The Supreme Muddler."

Possibly both pseudonyms are applicable according to the viewpoint from which his record is judged. As a scholar, teacher, expounder of the classics, and advocate of Reform for China, the former title is assuredly his, but as a practical politician or executive dealing with affairs of international importance, Dr. Morrison's characterization sums up his capacity from the British standpoint. China owes much to the venerable statesman, and his favorable attitude towards foreign nations has earned for him their respect and confidence. His pamphlet directed to the Chinese people entitled "Learn" was the first document from a high official urging his countrymen to cast off their old antipathy and learn foreign methods so that in time China could combat the foreigner with his own weapons. After closely showing the needs of the Empire the writer proceeded to give practical advice regarding the reforms to be introduced.

In his treatise he favored the study of modern sciences and foreign study together with the establishment of new schools throughout the Empire and new methods of instruction. Foreign teachers, he urged, should be dispensed with, but not foreign books which are of inestimable value translated. Newspapers should be encouraged, the laws revised, examinations reformed, and instruction in agriculture, industry and commerce directed into new channels. The reorganization of the army, development of mining, construction of railways were also commended. Chang recognized the deplorable weakness of his country and admitted that even Cuba was stronger and warned his countrymen that if reforms were not initiated China would share the fate of India, Poland, Egypt or Corea.

Chang's career dates back to 1863 when he graduated Tertius at the Metropolitan Examination, and was soon ordered to the Bench of Kuantung. His first executive post was Governor of Shansi in 1882 and since then he has held the viceregal posts at Canton, Wuchang, Nanking, besides being appointed Junior Guardian of the Heir Apparent, High Commissioner of Commerce, Grand Secretary, Grand Councillor, Comptroller General of the Board of Education and Director General of the Hankow-Canton Railway.

His Excellency is the scholar of the Government at Peking. No one can excel him in drawing up elaborate and intricate regulations and giving the proper tone to Imperial edicts. The importance of education as the keystone for the regeneration of the Empire, so strongly urged by him in his appeal, was approved by the Throne, and under his guidance the establishment of schools and a modified system of instruction is being energetically encouraged. Chang as Grand Councillor is one of the Powers that Be in Peking, but his age is beginning to tell, and he will soon have to give way to a younger man. He has already petitioned for permission to retire, but the Regent is holding to the old experienced councillors, until suitable successors can be found.

H. E. CHANG JEN-CHUN
TRANSFERRED FROM THE VICEROYALTY OF THE LIANGKWANG PROVINCES (CANTON) TO THAT OF THE LIANGKIANG (NANKING)

H. E. TUAN FANG
TRANSFERRED FROM THE LIANGKIANG VICEROYALTY TO VICEROY OF CHIHLI, THE METROPOLITAN PROVINCE, ORDERED TO REPORT TO PEKING, AND IT IS RUMORED THAT HE WILL BE RETAINED THERE ON THE GRAND COUNCIL.

H. E. HSI-LIANG,
RECENTLY TRANSFERRED FROM THE YUN-KUEI VICEROYALTY TO VICEROY OF MANCHURIA. CAPITAL AT MUKDEN

H. E. NA TUNG.
ACTING VICEROY OF CHIHLI. SECOND PRESIDENT OF THE WAIWUPU, GRAND SECRETARY, ETC.

H. H. PRINCE SU,
PRESIDENT OF THE BOARD OF INTERIOR, ETC.

H. E LI CHING-HSI,
THE NEW VICEROY OF THE YUN-KUEI PROVINCES.

H. E. YANG SHIH-HSIANG,
THE LATE VICEROY OF CHIHLI, THE METROPOLITAN PROVINCE. CAPITAL AT TIENTSIN.

H. E. TIEH-LIANG,

PRESIDENT OF THE BOARD OF ARMY.

The Secretary of War for China, His Excellency Tieh-Liang is, as his name indicates, a Manchu, and one of the most conservative and reactionary officials in Peking. His official career, which began by his purchase of an office, has been centered in the capital. Since 1901 he has successively held many of the highest offices of the Empire, but it was not until he clashed with the progressive Yuan Shih-Kai that the attention of foreigners was directed to his actions. As the leader of the reactionary party in Peking he steadily opposed all measures of reform and especially the steps towards future constitutional government. In 1906 when the Constitutional movement was inaugurated, Tieh-Liang was President of the Board of Revenue or Treasury, and under his leadership an immediate effort was made to check the reforms at their inception. During the absence of Yuan Shih-Kai at the autumn army maneuvers in 1906, Tieh-Liang and three of his conservative clique influenced the Empress to appoint them to the Grand Council, and the fate of the reform movement seemed doomed, when Yuan hurried back to the capital, interviewed the Empress, and exacted a new decree, the first clause of which cancelled the recent appointments to the Grand Council, which was followed by the order that the administrative reforms must be acted on and carried out.

In the shuffle of posts following the edict, Tieh-Liang secured the Ministry of War, or head of the Army, and as Yuan Shih-Kai was Commander-in-Chief of the Manchu Garrisons at Peking, and four divisions of modern drilled troops in Chihli, his enemy obtained a temporary advantage over him. The Board of Army was directed by four Manchu officials but Yuan's strength was so great that they were powerless to seriously interfere with his troops.

Since the downfall of Yuan, which was assisted by the intrigues of Tieh-Liang, the latter has also fallen in prestige and the next shuffle will find him relegated to an obscur post.

Reports from Peking state that after the Imperial deaths, and the elevation of Prince

His Excellency CHAO ERH HSUN,
VICEROY OF SZECHUEN. CAPITAL AT CHENG'TU

His Excellency CHEN CHAO-CH'ANG
GOVERNOR OF KIRIN PROVINCE, MANCHURIA

H. E. SUNG SHOU
VICEROY OF THE MIN-CHE PROVINCES (FUKIEN AND CHEKIANG)
CAPITAL, FOOCHOW

H. E. CH'EN K'UEI-LUNG
VICEROY OF THE HU-KUANG PROVINCES (HUPEI AND HUNAN). CAPITAL AT WUCHANG

H. E. SHENG YUN,
THE EX-VICEROY OF THE SHEN-KAN PROVINCES (SHENSI AND KANSU) AND HIS CHIEF OFFICIALS

Chun to the Regency, Tieh-Liang and two of his Manchu associates hatched a conspiracy to overturn the new régime, and have Kuang Hsu's wife, the present Empress Dowager, "drop the curtain" and take over the reins of government, following the example set by her predecessor. With the army under his orders, Tieh-Liang would support the new ruler with force, and assure her position, and at the same time become the leading power in the new reign. The plot was made abortive by the refusal of the Empress Dowager to assent to it, and fearing punishment the conspirators hastened to absolve their action to the Regent by placing the blame on each other, in the endeavor to reinstate themselves in favor.

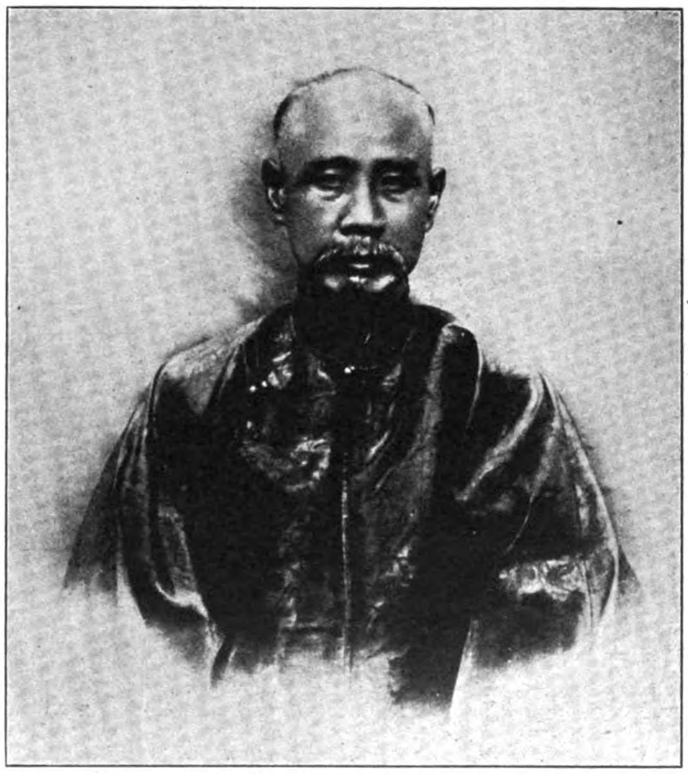
That there is some truth in this is apparent from the constant reports from Peking concerning Tieh-Liang's transfer. From time to time it has been reported that he has applied for the post of a Viceroy, first at Wuchang and again at Tientsin. Then we hear that he has petitioned to be permitted to proceed to Kansu to reorganize the Army, and the latest rumor is that he will be ordered as Military Governor of Ili in Chinese Turkestan, which in other words means banishment from the Court.

If these reports are true, and they are not denied, Tieh-Liang in his dream of power and desire to be as great as his enemy, Yuan, has fallen from grace, and will spend his days in exile.

H. E. TUAN FANG

VICEROY OF CHIHLI.

When Yuan Shih Kai was dismissed from his high offices, it was feared that China had not another man of equal ability to fill his post, and carry through the many essential reforms that stand for progress and fair dealing with the foreigner. In scanning the limited political horizon of Peking, none of the officials loomed large enough to fill the vacancy left by the energetic Yuan, but to the south, in the old southern capital of the Empire, there was one who quietly and without ostentation had been doing things and making a reputation out-rivalling all others in the Empire. Tuan-Fang, the Manchu Viceroy of Nanking, had followed in the footsteps of Yuan at Tientsin and inaugurated many new reforms, organized and equipped three divisions of the modern army, and in many other ways demonstrated his capacity as a progressive ruler. The career of this official has been one of rapid promotion. For a long time he held the post of Senior Secretary of the Board of Works at Peking and in August, 1908, was appointed Administrator General of Trade and Agriculture. In November of the same year he was promoted as provincial judge, and in October, 1899, made Treasurer of Shansi, and transferred to the same post in Honan in 1901. In May, 1901, he was promoted to Governor of Hupei, holding the post till May, 1905, when he was shifted to Kiangsu, and in December of the same year to Honan. In the following year he was selected as a member of the Imperial Commission to Foreign Countries to study Constitutional Methods, and on the report of the body is based the present plan for a constitution for the



H. E. MAO CHING-FAN,

TREASURER OF KANSU PROVINCE AND ACTING VICEROY OF SHEN-KAN. CAPITAL AT HANCHOW

H. E. YUAN SHU-HSUN,

PROMOTED FROM GOVERNOR OF SHANTUNG TO VICEROY OF THE LIANG KUANG PROVINCES (KUANGTUNG AND KUANGSI). CAPITAL, CANTON

Empire. In September, 1906, he was ordered to the Viceregal Chair at Nanking and in the last three years he has made a high reputation as a progressive executive. The *Shanghai Times* commenting on his record, says:—

"The work of the retiring Viceroy, Tuan

H. E. CHEN-PI,
THE CASHIERED PRESIDENT OF THE BOARD OF COMMUNICATIONS

Fang, during his tenure of office at Nanking, has been of such an unusual character as to attract a large measure of public attention to him. He became well-known to foreigners during the Boxer outbreak in 1900, when he

H. E. KAO LING-WEI,
COMMISSIONER OF EDUCATION, HUPEI PROVINCE

succeeded in saving the lives of many missionaries by allying himself against the forces of disorder. When he was transferred to Wuchang as Governor, he found a warm welcome from

H. E. LING FU-PENG,
GOVERNOR OF SHUNTIEN-FU (IMPERIAL PREFECTURE OF PEKING)

H. E. SUN CHIA-NAI,
GRAND SECRETARY, PRESIDENT OF SENATE, ETC.

foreign officials and residents, and during the seven years of his sojourn in the Yangtze Valley he has fully realized the high hopes which were expected of him. His trip to Western countries as Commissioner for the Investigation of Constitutional Government, brought him into relationship with many of the leading statesmen of Europe and America. The impression which he made during his extended trip was most favor-

H. E. SHENG HSUAN-HUAI
(SHENG KUNG PAO)
HIGH COMMISSIONER FOR TREATY REVISION

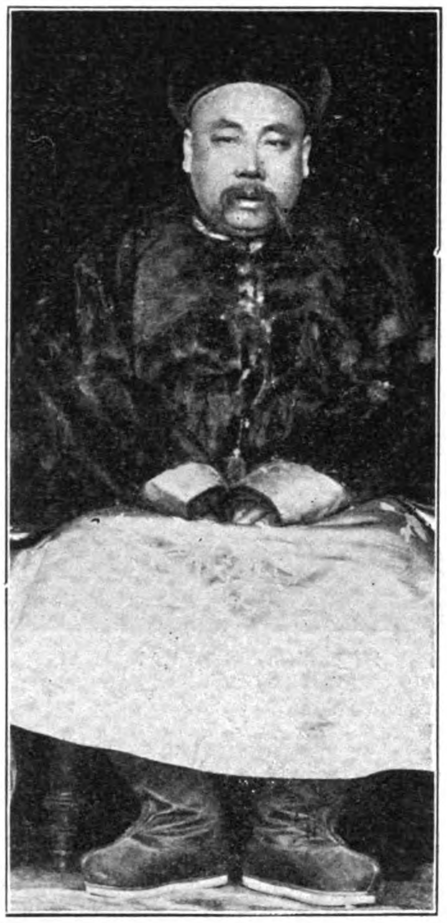
able for his own country, and did much to give himself a new outlook upon affairs not only of his own country, but also of the countries having Treaty relations with China.

"During the last three years in Nanking, in addition to his encouragement of schools and his attention to financial matters, he has shown a keen interest in all attempts to improve the condition of the people of these three Provinces

LEE MING-TSUN,
TREASURER OF HUPEI PROVINCE

The completion of the Shanghai-Nanking Railway was taken advantage of by him as an opportunity for opening a City Railway con-

necting the heart of the City with the railway terminus and the steamer landing. He laid out plans for a public park in the northern part of the City, where there is so much farming land, and planned to hold in this park the Nanyang Industrial Exhibition which is due to be opened next May. The Army maneuvers which were carried out last Autumn were largely due to his initiative. It was a favorable opportunity to show how much had been done



HIS EXCELLENCY CHOU SHU-MU,

GOVERNOR OF HEILUNGKIANG PROVINCE (TSITSIHAR); A NATIVE OF HUPEH PROVINCE; WAS COMMISSIONER OF EDUCATION OF KIANGSU PROVINCE IN MAY 1906; PROMOTED TO SENIOR SECRETARY TO GOV'T OF FENGTIEN PROVINCE IN MAY '07, AND TO HIS PRESENT RANK IN MARCH, 1908

in bringing up the standard of the troops under his jurisdiction. Viceroy Tuan attended the opening of the Opium Commission last February as Special Imperial Commissioner. His opening speech, though much criticised at the time, has come to be considered as a fair statement of the desires of the Chinese Government in controlling the traffic in opium. The constant interest taken by the Viceroy in literary and artistic matters has been a delight to those who have been fortunate enough to see some of the art treasures which he has brought together. His purchase of the famous Classical Library from Chekiang, and his building of a handsome structure to provide a permanent home for it, will make it certain that his patronage of letters will be long remembered by the literary men of these Provinces."

The transfer of Tuan Fang to the premier Viceroyalty of China is accepted as the first step to his further promotion to the Grand Council and higher posts at Peking. The venerable councillors, Chang Chih-Tung, Lu Chuan-lin and Prince Ching, will soon have to retire from age, and younger men admitted. In Tuan Fang, the Regent has made a wise selection, for while a Manchu and conservative, he is heartily in favor of progress, has the confidence and respect of foreigners, and is fully committed to the constitutional movement.

H. E. CHANG JEN-CHUN

The new Viceroy of the Liang-Kiang Provinces (Kiangsu, Kiangsi, and Anhui.)

The new viceroy at Nanking is a native of Chihli Province. Although a Metropolitan Graduate of 1868, it was not until 1889 that he attained any prominent official post when he was appointed Taotai of Kuelin, the capital of Kiangsi. In 1894 he was promoted to Judge of Kuangtung, and Treasurer in 1896, and transferred in 1898 as Treasurer of Shantung. In 1900 he was Director General of Grain Transports, and in the following year received his first executive post as Governor of Shantung on the promotion of Yuan Shih-Kai to Tientsin. Since then he has successfully been governor of Honan, Kuantung, Shansi, Honan, and promoted to the Canton Viceroyalty in August 1907.

His record at Canton has earned for him the cordial friendship of foreigners, and his promotion to Nanking is well merited. The Tatsu Maru incident followed shortly after his taking over the office, and although China had to recede from the position taken, there is no doubt that the mere fact of a Chinese vessel having the temerity to overhaul a Japanese steamer had a great moral effect on the nation, and the Canton Viceroy reaped the benefit of the episode.

The *Hongkong Telegraph* in summing up the record of Viceroy Chang at Canton says:—

"The promotion of His Excellency Chang Jen-chun, Viceroy at Canton, to the Viceroyalty of the Liang Kiang in succession to H. E. Tuan Fang, at the present juncture is a circumstance which will be regretted by those who have followed with intelligent interest His Excellency's short course of administration in the neighbouring province. Following the government of the veteran Cho Fu, who succeeded the energetic and redoubtable Shum in the Viceregal yamen at Canton, Chang Jen-Chun within the first weeks of his administration was brought face to face with an international problem which at one time threatened to be so acute as very nearly to strain the good relations between the two neighbouring friendly Powers of China and Japan. We allude to the 'Tatsu Maru' affair, which might well be now relegated to the limbo of the forgotten past but for its connexion with the initiation of the administration of the subject of our notice. More closely connected with Hongkong, however, His Excellency Chang was brought into prominence soon after his arrival at the Southern Capital by reason of his negotiations with Admiral Sir Arthur Moore for the suppression of piracy in the Canton Delta. How successful those negotiations had been was seen in the arrangement concluded with the then Commander-in-Chief of the British South China Squadron, which provided for a fleet of patrol launches and guard-boats, besides large fast-steaming cruisers for the efficient policing of the waters of the West and Pearl Rivers. Though the exchange of communications between the Government of Hongkong and Canton in the matter of subsidiary coinage has not resulted to the entire satisfaction of British merchants and traders in this Colony, it must be conceded that, yielding to the representations in the interest of the Colonial Government, Viceroy Chang ordered the temporary stoppage in the minting of small coins in conformity with the undertaking made to Sir John Jordan by the Ministry of Foreign Affairs in Peking. It was not until the mercantile class in Canton urged for a greater output of the silver tokens within the province that the provincial mint renewed the normal output of the subsidiary currency, which, unfortunately, continues to find its way in large quantities into this Colony. As manifesting the cordial relations which have subsisted between the two interdependent ports of Canton and Hongkong, the present Viceroy has done more to assist in the building of the Chinese section of the all-important Canton-Kowloon Railway than any of his predecessors. Fully alive to the necessity of rapid communication between the two neighbouring tradal centers, and anxious to promote the interests of the inhabitants of the vast territory under his administration, the aged Viceroy took that lively personal interest in the commencement and building of the railroad that has gone far to the early completion of this most important undertaking. Not only does the Viceroy seek the material progress of his people, but he is ever watchful of their moral and intellectual well-being. Abundant evidence of this fact is found in the tangible proof he has just recently furnished in the matter of education. So thoroughly sympathetic has His Excellency Chang Jen-chun been towards the Hongkong University project, which is destined to be of such incalculable benefit to the Chinese people, in particular to those of South China, that he has come forward with a promised donation of $200,000 subscribed by the provincial departments of his Government and is believed to be exerting his influence to secure another like amount from the mass of the people in Kwangtung and Kwangsi. It is to be hoped that His Excellency Chang will translate his practical sympathy towards the University scheme to the new sphere of his

H. E. P'U-SHOU,

TARTAR-GENERAL, FOOCHOW

activities and thereby secure from the wealthy gentry and populace of the rich province of Kiangsu the same measure of support that has been forthcoming from Canton. Another instance of his friendly attitude in his foreign relations may be cited in the assistance which he and his Government tendered to the Italians who suffered by the terrible calamity which reduced Messina to ruins in the earthquake at the beginning of this year. When his own provinces were visited by disaster, such as the catastrophic floods and devastating typhoons of last year, the sympathetic Viceroy showed himself most solicitous of the necessities of the Chinese who were reduced to frightful straits. He did not content himself with receiving reports from his subordinates, but Viceroy Chang made a point of personally visiting the shocking scenes of distress and alleviating all whom it was within his power to succour. Not only have the inhabitants of Kwangtung evoked his interest and sympathy in their hour of trial and distress, but in matters commercial also he has worked indefatigably in their interest. There are evidences that under the wise administration of the retiring Viceroy, Canton has progressed as both a commercial and industrial centre."

H. E. NA TUNG

The acting Viceroy of Chihli, pending the arrival of Tuan Fang, is the second President of the Board of Foreign Affairs and Grand Secretary, Na Tung.

A Manchu of the Conservative party occupying some of the most important offices in Peking, he is best known through his connection with the Board of Foreign Affairs. He was Minister of the old Tsung-li-Yamen and shortly after its reorganization into the present Wai-wu-pu, he was appointed as its President.

During the Boxer disturbances of 1900, Na Tung was one of the chief supporters of the movement, and it is asserted that his life was demanded by the Powers on the conclusion of peace, but Japanese influence saved him from the death penalty. Na Tung has many bitter enemies, especially among foreigners who will never forgive his participation in the Boxer uprising. On the other hand it is also claimed that since his life was saved he has materially changed his former views and to-day, while still conservative, he is not unfavorable to progress or reform in some directions.

It is claimed that since his return from the special embassy to Japan in July, 1901, he has come under Japanese influence, and the fact that he owes his life to the same Power lends color to the report.

H. E. TIEH LIANG,
PRESIDENT OF THE ARMY BOARD, ETC.

H. E. HSI LIANG

VICEROY OF MANCHURIA.

From the foreign point of view, the most antipathetic character amongst the present viceroys of China is the new incumbent of the post at Mukden, His Excellency, Hsi Liang. Not so much from his pronounced anti-foreign sentiments is due this cordial dislike, but from a knowledge that he is an incompetent wire puller, who has achieved his advancement through the timeworn custom of exaggerating the difficulties of his work to reflect more credit on himself.

A hard shell reactionary and conservative, deeply anti-foreign, opposed to progress in any form, Hsi Liang, the Mongol Viceroy of Yunnan, was selected by the Regent to fill the most difficult post in the Empire, and succeed one of the most progressive rulers of the present generation. For under H. E. Hsu Shih Chang, Manchuria was governed with a view of developing its resources, and promoting the welfare of the people, surrounding himself by the most brilliant foreign educated officials to assist in the task of bettering conditions, and solving the many important political issues between Japan and Russia. Such men as Tang Shao Yi, Liang Ju-hao, Shih Shao-chi, Chou Chang-Ling, Key Tsu-Yi, and other foreign educated officials, were almost a guarantee that progress would be made, and their employment in Manchuria was hailed by foreigners as denoting a new turn of affairs.

The appointment of Hsi Liang to succeed Hsu Shih Chang came as a great surprise, as his record inspired distrust. From the time of his appointment in May 1896 as Taotai of Yenchowfu, his record shows a constant shifting around from post to post, never filling any of them the full term of office. In January, 1898, we find him as Taotai of Taiyuanfu, in November of the same year promoted to Judge of Shansi and in three months over he goes as Judge of Honan, which he holds for one month when he is made Provincial Treasurer. This post he held until October, 1900, when he was promoted as Governor of Shansi. In June, 1901, he was made Director General of the Yellow River works, and in a few months also found time to act as Governor of Honan. On the abolition of the Yellow River sinecure, he was made full Governor of Honan in March, 1902, which post he held for two months when he was shifted to Jehol in May as Lieut. Governor. In May, 1903, he received his first Viceregal Commission to proceed to the Min-Che provinces which true to his record he held for the long space of two months, for in June, 1903, we find him sent as Acting Viceroy of Szechuen and in December, 1904, he was made full viceroy. This post evidently suited him as he remained there until March, 1907, when he was transferred to the adjacent province of Yunnan. His transfer in February of this year to Manchuria rounds out his interesting official career.

During his entire official career his real capacity was called on and taxed only once. While Viceroy of Yunnan a rebellion broke out in the southern part of the province which could have been easily put down at the outset had any real effort been made. But it was allowed to drag along and no serious attempt made to check it, so as to give undue importance to the Viceroy's task. Complications arose with the French Government of Tongking, whose territory had been invaded by the Chinese troops in pursuit of the rebels, and on the strength of this one incident, Hsi Liang's reputation was greatly enhanced, and made him a marked man at Peking. So, when in the opinion of the Regent the situation in Manchuria demanded a change of Viceroys, and in casting about for a strong character, the man who had successfully sent his soldiers into Tongking and defied France loomed large among the other do nothing governors, and he was sent for and ordered to Mukden to "humble" Russia and Japan as he had France.

His entrance into Mukden dispelled at once any ideas that were entertained about his capacity for handling the situation in the province where an enlightened policy is imperative to offset Japan's and Russia's schemes. Eye witnesses of his arrival at the Manchurian capital state that when met by all his officials at the railway station, and a carriage ready for his conveyance to the Yamen, he very curtly refused to ride in it and insisted on being provided with a sedan chair. The new foreign style Government House at Mukden, and the fine macadam road leading to the station next aroused his ire, and when he found that the official day was regulated to meet the demands of foreign consuls and common-sense between the hours of 9 a. m. and 4 p. m. he ordered a reversal to the hours of 4 a. m. to noon. The Regent and Grand Council, behind the palace

H. E. LIN SHAO-HIEN, VICE PRESIDENT IN CHARGE OF GRANARIES. (2ND FROM LEFT, SEATED); H. E. LU CHUAN-LIN, GRAND SECRETARY, GRAND COUNCILLOR, ETC. (3RD FROM LEFT, SEATED); H. E. CHANG CHIH-TUNG, GRAND SECRETARY, GRAND COUNCILLOR, ETC. (4TH FROM LEFT, SEATED); H. E. HSU SHIH CHANG, PRESIDENT OF BOARD OF COMMUNICATIONS (5TH FROM LEFT, SEATED)

walls of Peking, where no official business with foreigners is transacted adhere to the old custom of beginning the day at 3 a. m., and what is right for them, must be right for Hsi Liang and Manchuria, and if foreigners cannot accommodate themselves to these odd hours, so much the worse for them.

The following communication in the L. & C. Express, from a Correspondent in Mukden, gives some interesting sidelights on the character of the new Viceroy:—"A Governor was sent lately from Peking to Mukden who is a Machun of the old school, detesting Westerners and all their ways. Shortly after his installation he called the members of the Civil Service together and addressed them as follows:—'As far as I can see there are too many of you officials: you are too highly paid, and don't work hard enough. I mean to dismiss half of you, and reduce the pay of the rest. I observe that many of you wear silk robes and ride in broughams or other new-fangled conveyances, which you ought not to be able to do on your salaries. Now, in future, be careful! Wear cotton and ride in sedans, or you will be dismissed. If I should make a mistake in my policy you are enjoined by me to speak up, and tell me frankly how I have erred. I have nothing further to say on this occasion except that if I catch any of you tripping, by——I'll have his head off! Now go home and think of what you have heard, for I mean it.'"

Such is the official the Regent has selected for the most difficult post in the Empire. The brusque, intolerant attitude of the viceroy may conceal high qualities of statemanship or he may be implicitly following instructions from Peking. In the face of the many problems of vital importance to China centered in the present situation in Manchuria, the world will not be long in gathering a true estimate of the man.

H. E. JUI CHENG
GOVERNOR OF KIANGSU PROVINCE.
CAPITAL, SOOCHOW.

H. E. SUN CHIA-NAI, GRAND SECRETARY, ETC.

H. E. CHAO ERH-HSUN.

VICEROY OF SZECHUEN.

H. E. Chao is a Han Chun, or Chinese Bannerman, and a Metropolitan Graduate of 1874. Rising through the subordinate grades of prefect, taotai, judge, treasurer, and governor, we find him acting and officiating as President of the Board of Revenue at Peking in 1904, and from there as Tartar General or Chief executive of Manchuria in 1905. The intense political struggle waged in this province during his term of office brought Chao into the lime light. Before the aggressive policy of the victorious Japanese, Chao had to yield and quietly acquiesce in many usurpations of China's authority. For this he has been accused of weakness, but under the exceptional circumstances surrounding conditions in Manchuria at that time, it is difficult to see how he could successfully oppose the Japanese attitude. Chao holds the reputation of being very simple and frugal, disdaining ostentatious display, and an advocate of economy in official expenditure. The conditions in Manchuria calling

H. E. HSU SHIH CHANG, PRESIDENT OF BOARD OF COMMUNICATIONS (in the center.)
H. E. PRINCE YU-KANG, HEAD OF ARMY REORGANIZATION BOARD (to the left.)
H. E. CHAO PING CHUN, VICE-PRESIDENT, BOARD OF INTERIOR (to the right.)

for a reorganization of the provinces into a viceroyalty, to safeguard China's integrity, Chao was ordered to Szechuen in May, 1907, and the new régime inaugurated in Mukden. In September, 1907, Chao was made Viceroy at Wuchang and in the following March transferred to his present post in Szechuen. As ruler of this province Chao's main problem is

H. E. CH'ENG TE-CHUAN,
RECENTLY APPOINTED GOVERNOR OF MUKDEN

to keep the warlike Lolos and frontier tribes in check, but this seems to be beyond the military ability of the Chinese troops. His brother Chao Ehr-fang, the Imperial High Commissioner in charge of the Thibetan frontier defenses, with instructions to pacify the marauding barbarians, has for a long time lingered at Batang suffering from frigid extremities, and the pacification of the border tribes is still a dream of the future. The stories from the Heart of Szechuen relating the military prowess of the Chinese troops according to official reports rendered the Viceroy

H. E. CHANG CHIH-TUNG

at Chengtufu, bear a striking likeness to official reports of the Spanish officers during the insurrection in Cuba. But all this is good and sufficient reason for the expenditure of provincial funds, and Peking is a long way off, and the reports of victorious battles, heaps of slain, captured villages and insurgent strongholds make interesting reading, and conclusive proof that the authorities are active and preserving the Empire from serious rebellion.

H. E. YUAN SHU-HSUN,

VICEROY OF CANTON.

The new viceroy of Canton, Yuan Shu-Hsun, is a native of Hunan, and began his official career in January, 1901, as the Ching-chow Taotai, and immediately afterwards was ordered to the important and lucrative Su-Sung or

H. E. TSENG YUN,
GOVERNOR OF CHEKIANG PROVINCE. CAPITAL, HANGCHOW

Shanghai taotaiship. He was twice ordered to other posts but secured powerful influence to remain in Shanghai. Although rated by the Chinese as a capable official, he is regarded as

anti-foreign and reactionary. During his tenure of office in Shanghai, in 1905, the anti-foreign riots occurred which greatly alarmed the settlement, and it is now generally recognized that Taotai Yuan could have suppressed the movement at the start had he been actuated by friendly motives. His attitude on this occasion has justly earned for him the deep resentment and mistrust of all foreigners, and the rapid promotion after his removal from Shanghai has not tended to clear the Central Government from a share in this mistrust.

It is clearly evident that the only important event of his official life elevated him in the estimation of his countrymen, for we find that, instead of a reprimand for neglect to hold in

H. E. CHOU FU,

EX VICEROY OF LIANGKIANG, MIN-CHE LIANG-KWANG PROVINCES, ETC. AWAITING APPOINTMENT

check the forces of disorder, he was actually promoted to the choice post of Governor of Shuntienfu, the Imperial Prefecture of Peking. However, he did not proceed, and we find him summoned to Peking later on, and in February, 1908, promoted to the still higher post of Senior Vice-President of the Board of Interior, two months afterwards to the Governorship of Shantung Province, and in July to the Viceroyalty of the Liang Kuang at Canton.

It is a matter of current comment that the promotion to Canton was effected solely through the power of money. When it became evident that Viceroy Yang could not survive his illness, Yuan dispatched his son to Peking with unlimited funds to intrigue for the post, but the Regent, while favorable to his promotion, held the opinion that he lacked executive experience to administer the Metropolitan Province, and on the other hand he desired to place a Manchu

H. E. HSU CHIH CHANG

FORMER VICEROY OF MANCHURIA NOW PRESIDENT OF BOARD OF COMMUNICATIONS

in this important office. As the two former Viceroys of Chihli had been promoted from the Governorship of Shantung, Yuan seemed to think that this precedent would tell in his favor.

His career at Canton will be closely followed, for in this hot bed of anti-foreign sentiment and insurrection, a viceroy predisposed to mischief can have his hands full. Yuan Shu-Hsin's rapid advancement is exceptional inasmuch as he is one of a very few governors or viceroys who has not risen to his rank through the grade of treasurer. It is a singular fact that of all the present provincial rulers there are only four who have not been promoted from the rank of Treasurer, and the same rules applies to all other high officials in Peking graduated from the viceregal class.

THE LATE YANG SHIH-HSIANG

The late Viceroy of Chihli, Yang Shih-Hsiang, first came into prominence in 1901 when Yuan Shih-Kai discovered him as Taotai of Tungchow, and raised him to the post of Judge of the Province and in the following year to the Treasury. In January, 1905, through Yuan's influence, he was again promoted to the Governorship of Shantung, and on Yuan's appointment to the head of the Waiwupu in September, 1907, he caused the transfer of his protégé to the Viceregal vacancy at Tientsin. The late Viceroy could not be classed in the same category with such men as his predecessor or successor in office, and, although he carried out his work diligently and effectively, he was at the best only an instrument of Yuan Shih-Kai's.

According to plausible reports Yuan was a lavish executive, and created a large number of superfluous offices and sinecures for the benefit of his henchmen, and their retention in service was made obligatory on Yang's appointment as Viceroy. In addition to taking care of the numerous friends of Yuan in the Chihli service, his own relations and favorites had to be accommodated and further sinecures created. The average Tientsin official drew salary from the Provincial Treasury for several different jobs.

It is further alleged that Yuan left a deficit of Taels 7,000,000 which could not be officially accounted for, and one of the considerations on which Yang was given the post was that he should take over the shortage. In providing for the further increase in soft jobs for his own friends, and those foisted on him by Peking, instead of reducing this deficit, it was augmented to nearly 10,000,000 Taels on Yang's death. On Yuan's downfall, Yang seized the opportunity to dismiss many of the useless officials and effected a considerable saving.

The present acting Viceroy, Na Tung, has been conducting an investigation into the

H. E. TSEN CH'UN-HSUAN

EX PRESIDENT OF BOARD OF COMMUNICATIONS, VICEROY OF YUN-KUEI LIANG, ETC. AWAITING APPOINTMENT

Provincial accounts, and while the misappropriation of a large sum is admitted, it is far below the amount originally claimed. Yang's treatment of his patron and benefactor, when Yuan turned to him for support on his downfall, has given rise to much unfavorable criticism. Chinese officials and certain inspired organs insist that Yuan's visit to Tientsin immediately following his dismissal was on purely personal business, but there is good reason to believe that he fled to his protégé for material support and assistance. It is a fact that Yang refused to see or admit him to the Yamen, and the few Tientsin officials aware of the secret visit also ran to cover, afraid to communicate with him. His last hope vanished, Yuan fearing for his life, hastily entered the British Settlement and passed the night in the Astor House, and only returned to Peking on the guarantee of personal safety. Yang's treatment of the man who made him was resented by many of the other high officials in Chihli, who, it is claimed, would have rallied to Yuan's support had Yang shown a little backbone, and it is already

H. E. LI CHING-FANG (ADOPTED SON OF LI HUNG-CHANG), MINISTER TO GREAT BRITAIN. H. E. SHENG KUNG PAO, H. E. TSEN CH'UN-HSUAN, H. E. LU HAI-HUAN.

rumoured that Yang's demise was assisted by some of Yuan's adherents, in the desire for revenge. This is probably only another of the many stories which find currency in a country where actual facts are difficult to secure.

In his valedictory memorial to the Throne the late Viceroy advocated the re-organization of the Navy, the reform of official administration, retrenchment of expenses and encouragement of industries as essentials in preparing for a constitution in China. He also dilated on the importance of real action in reform measures and expressed sorrow that paralysis should prevent him from reaching the goal of his desire, which was to carry out reform in the government.

H. E. SHENG HSUAN-HUAI, VICE PRESIDENT OF BOARD OF COMMUNICATIONS, ETC.

H. E. CHEN KUEI-LUNG,

VICEROY OF THE HU-KUANG.

The present occupant of the Viceregal Chair vacated by the "Grand Old Man of China," Chang Chih-Tung, has a comparatively short official career in high offices. A native of Kueichou Province, he passed the Metropolitan examinations in 1886. During the strenuous year of the Boxer troubles he was Vice-Governor of Peking and later Governor. In May, 1901, he was promoted as Treasurer of Honan, and in December Director General of Grain Transport. In April, 1903, he was made Governor of Honan, and transferred to Kiangsu in February, 1906, and to his present post as Viceroy in March, 1908.

H. E. LU HAI-HUAN, DIRECTOR GENERAL, TIENTSIN-PUKOW RAILWAY. FORMER PRESIDENT OF THE BOARD OF ARMY AND WAIWUPU.

H. E. SHENG YUN

The recent dismissal of the viceroy of the Shen-Kan, H. E. Sheng Yun, is a striking instance of the determination of the Regent to carry out his policy in the face of stubborn opposition. The career of Sheng Yun in various posts in the border provinces made him one of the most valuable officials of the Empire. A Mongol by birth, his official career started as Grain Taotai of Shensi in 1899, Judge of Shansi in May, 1900, Treasurer of Kansu, September, 1900, and in April, 1901, Governor of the Province. During this period he met the late Empress Dowager and the Court during their sojourn at Si-anfu, the capital of Shansi. It is not improbable that he listened to, and remembered her rather

FOUR GREAT VICEROYS OF THE LAST GENERATION

THE GREAT LI HUNG-CHANG.

LIU KUAN-IH,
ONE OF CHINA'S GREAT VICEROYS OF THE LAST GENERATION, GENERAL OF THE CHINESE FORCES IN THE WAR WITH JAPAN, ETC.

LI SHING YUAN.

WANG WENG SHAO.

pointed remarks about foreigners and reform, which under the circumstances in 1900 were somewhat caustic and explosive. After his elevation to the viceregal seat at Lanchowfu, came the decree promulgating the constitution and preparations for its establishment. Sheng never believed in it, and, up to the death of the late Empress, was not required to bestir himself in the matter. But with the accession of Pu-yi to the throne and his father to the Regency, the edict again went forth commanding the Viceroys to start the wheels turning. Sheng still winked the other eye and wrote back that it was impracticable for Kansu and the Mongol borderland, and stated that the late Empress was only bluffing about the Constitution anyway to pull the wool over the eyes of foreigners, and she never really intended that it should be carried out. Sheng's mind reverted back to her sayings of 1900 and forgot that the Empire had moved, while he had vegetated on the outposts of civilization.

So, while poor old Sheng was probably right in his attitude, he was foolish enough to express his opinions too freely, and the Regent lost no time in taking his official scalp.

Mao Ching-Fan, the Provincial Treasurer, acting Viceroy of the Shen Kan, is a native of Kiangsu, and in 1903 was in charge of the Kiangnan Arsenal. After filling various offices he was made Commissioner of Education of Kiangsu in May, 1907, and promoted to the Treasury of Kansu in 1908.

H. E. LI CHING-HSI.

VICEROY OF THE YUN-KUEI PROVINCES.

The appointment of Li Ching-hsi to the viceregal office of Yunnan, on the transfer of Hsi Liang to Mukden, came as a surprise, for from all reports he is without any previous experience in provincial administration. It is safe to infer that this nomination was directly influenced by his contribution to the Imperial "pork barrel," from the millions of his uncle, the celebrated Li Hung-Chang. The enormous wealth of the late statesman, distributed to his sons and adopted sons, have secured for them preferred posts in China, and in the case of H. E. Li Ching fang—the present Minister to Great Britain—the use of money seems to have been well directed.

The task of the new Yunkuei Viceroy is not an easy one, for the province is the scene of frequent rebellion, and the international disputes with France on the Southern borders will keep him fully occupied and will tax his ability to the utmost.

THE GROUP OF AMERICAN EDUCATED OFFICIALS ELEVATED BY YUAN SHI-KAI TO HIGH OFFICIAL POSTS

H. E. LIANG TUN-YEN,
JUNIOR PRESIDENT OF THE BOARD OF FOREIGN AFFAIRS

H. E. TANG SHAO-YI,
RECENTLY RETURNED FROM MISSION OF THANKS TO AMERICA AND STUDY OF FOREIGN FINANCIAL SYSTEMS. AWAITING APPOINTMENT AS VICE-PRESIDENT OF A BOARD

H. E. TSAI SHAO-CHI,
CUSTOMS TAOTAI OF TIENTSIN, THE PLUM OF THE SERVICE

H. E. LIANG TUN-YEN

The Junior President of the Board of Foreign Affairs, the working Secretary for State for China, is a Yale Graduate of 1883. Although the venerable Prince of Ching and Na Tung hold the first and second presidencies of this Board, on the Junior head, owing to his foreign education, falls the heavy routine work. Like the rest of the Educational Mission to America of 1874, Liang Tun-Yen is a Cantonese, and is the only one of the many returned graduates who has risen to the high rank of President of a Board. Liang's official career was, for a number of years, confined to the Viceregal Yamen at Wuchang, as Secretary and Interpreter to Chang Chih-tung, and to this intimacy is due his advancement and elevation. In 1903 the Viceroy secured for him the post of Customs Taotai of Hankow, and, in October of 1904 he was transferred to the same post at Tientsin. In May, 1907, he was appointed Minister to America, to succeed Sir Liang Cheng. The order was subsequently rescinded and he was sent to the Board of Foreign Affairs as Vice-President. In his career he was fortunate to have been associated with the two most powerful officials of the Empire, Chang Chih-tung and Yuan Shih-Kai. Chang made him, and Yuan developed and brought out his abilities. As Vice-President of the Waiwupu, he owed his post to Yuan. Although others of the foreign educated Cantonese had been longer with Yuan and held his confidence to a greater degree, and who undoubtedly were fully suited for this position, yet there were certain traits and attainments added to the possession of great tact, in the make up of Liang Tun-yen which fitted him for this particular and difficult post. He has fully justified the confidence reposed in his selection. Last year he was appointed in company with Prince Yu Lang as Imperial Commissioner to welcome the American fleet at Amoy, and at the time of the Imperial deaths was on a vacation of one month to visit his old home in Canton.

HIS EXCELLENCY CHOW CHANG-LING (C. L. CHOW)
CUSTOMS TAOTAI AT NEWCHWANG

HIS EXCELLENCY CHUNG MUN YEW
MANAGING DIRECTOR OF THE CHINA MERCHANTS STEAM NAVIGATION COMPANY AT SHANGHAI AND OF THE SHANGHAI-NANKING RAILWAY, A GRADUATE OF YALE UNIVERSITY AND FORMER SECRETARY OF LEGATION AT WASHINGTON AND CONSUL GENERAL AT HAVANA AND MANILA.

HIS EXC. LIANG JU-HAO.
RECENTLY RETIRED FROM CHIEF SECRETARY OF MANCHURIAN GOVERNMENT, DECORATED BY EMPEROR OF JAPAN.

Urgent orders to return to his official duties hurried him back to the capital. On the downfall of his patron, Yuan Shih-Kai, it was expected that Liang would have to quit also, but the influence of his old friend Chang Chih-tung, then supreme, insured his retention. The action of the Regent in retaining the services of Liang Tun-Yen, and promoting him to the post left vacant by Yuan, as President of the Board, has largely contributed towards dispelling the uneasy feeling created by the precipitate dismissal of Yuan Shih-Kai. For Liang is highly esteemed and respected by all foreigners for his uniform politeness and readiness to oblige. Not that he is pro-foreign or enthusiastic about reform, or that he can be readily manipulated into indorsing the many foreign schemes or propositions. He is what be termed a conservative liberal, and is dubious about the future success of the present constitutional movement. However, he is quietly handling China's interests in the many intricate and difficult problems now on the tapis and is able to achieve his point without incurring the enmity of the other side.

H. E. LIANG JU-HAO

One of the 120 students who proceeded to America in 1874 with the Educational Mission of Yang Wing, was the young Cantonese Liang Ju-Hao, more familiarly known under his other name of Liang Min-Ting (M. T. Liang). After completing a course in the colleges of Hartford and Springfield, he returned, without graduating, to China in 1881. Entering into commercial life he was employed in a lawyer's office in Hongkong and afterwards in a mining company. Like Chow Chang-ling, Tang Shao-yi, and Tsai Shao-Chi, schoolmates of his in America, his start in official life dated from the time when they were employed by Yuan Shih-Kai in the Residency at Corea, where a close intimacy sprang up with the future powerful ruler of China. As mentioned in the sketch of Tang Shao-yi, Yuan's views were greatly broadened by contact with the brainy young American educated Cantonese, and his mind prepared under their influence for the progressive attitude

assumed when he came into power. How far this contact with his assistants affected Yuan's administration of Corea and reports which precipitated the war with Japan can only be surmised, for there is now no doubt that Yuan's actions contributed to bring about the hostilities. While Yuan was directly obeying the orders of Li-hung-chang, his own interpretation of these instructions materially influenced the situation.

The friendship contracted with Yuan in Korea resulted in Liang's selection as one of his confidential assistants and here Yuan demonstrated that intuition, so rarely met with in administrators, of choosing men who can achieve results. On the restoration of the Imperial Railways of North China after the Boxer troubles, Liang was employed in the traffic department and in 1902 was appointed Director of the Road. Liang's ability, however, could not prevent the unprecedented amount of corruption which it is claimed characterized his tenure of office. Yuan was Viceroy at the time and trusted his lieutenant implicitly, and in 1906 secured for him the post of Customs Taotai of Newchwang. In April of the following year he was given the plum of the service,—Customs Taotai of Tientsin—and in October the prize at Shanghai. His education and ability to deal with foreigners was expected to bridge over the difficulties existing in the settlement, culminating from the actions of Taotai Yuan, and so well did he fulfil his mission that his patron transferred him as one of the Secretaries of the Board of Foreign Affairs at Peking. Here, under the wing of Yuan Shih-Kai, a brilliant opportunity was presented for the exercise of his undoubted diplomatic abilities, but the departure of Tang Shao-yi for America, leaving the important post at Mukden vacant, led to his transfer as Chief Secretary to the Manchurian Government pending the return of Governor Tang. His tenure of office in Mukden was cut short by the downfall of his patron and the appointment of Hsi Liang as Viceroy. The new Viceroy has no use for foreign educated officials who know more than himself, and one of the first to go was the Secretary, M. T. Liang. Since then he has been decorated by the Emperor of Japan for the equitable spirit displayed in handling the many delicate and intricate political questions which had to be threshed out in the Mukden Yamen. Liang is now on leave visiting Japan for his health. His further employment and advancement under the new régime seems certain, so he is one of the few men whom China cannot afford to dispense with during the next critical decade.

H. E. TSAI SHAO-CHI

Tsai Shao-chi is another of the group of American educated Cantonese, in whom Yuan Shih-kai reposed implicit trust and confidence. Tsai was a Yale Student of the Mission of 1874, graduating in 1885, and became attached to Yuan in the days of the Corean residency. For many years he held minor posts, and was later connected with the Imperial Railways. His first important official appointment was the Customs at Newchwang in May 1907, and in October of the same year he was promoted to Customs Taotai of Tientsin, which he still occupies. Under the present shifting around he will probably be transferred to make way for some favorite of the new viceroy.

Tsai's post has been an arduous one, for, in addition to the heavy work attached to his office, he was the real buffer between the Viceroy and the foreigners. The foreign affairs of Chihli were entrusted to his charge, and in a way he was also the go-between for those higher up at Peking.

Tsai is very American in his manners and ideas, and is educating his sons in that country. The post of Minister to America was offered him two years ago, but he declined the honor to round out his official life at home.

HIS EXCELLENCY TANG SHAO-YI

Probably the most interesting high official in China is His Excellency Tang Shao-Yi, a Cantonese by birth, who was sent to America in the early eighties to be educated. Graduating from Columbia College in New York city, the young student returned to his native land, with well defined ideas of the outside world and the principles underlying modern progress, and thoroughly equipped for the rather eventful official experience in store for him. Amongst many bright youths of his own province who were also educated abroad at the same time, and who have since made international reputations in the official life of China, the name of Tang Shao-Yi stands easily at the head of the list, and it is not too much to add, that if he was given his due by his enemies he would be acknowledged as the brainiest man in the Empire to-day.

His official life commenced when Yuan Shih Kai was ordered to Corea as China's Resident previous to the war with Japan, Tang going with him as Secretary. From this point the future of the young student was assured, for in Corea there sprung up an intimacy and friendship with his superior resulting in the rapid advancement of both to the highest posts in the Empire. Whatever debt China and the world owes to Yuan Shih-Kai for the progress of the Empire during the last ten years while he controlled the government, some share of it must be credited to the man whose influence was largely responsible for Yuan's liberal views. For it is quite evident that Yuan, who had never been abroad, and whose education was not up to the standard of other celebrated statesmen of China, must have received his inspiration from his confidant and intimate friend, Tang Shao-Yi. As Yuan was advanced by the favor of the late Empress Dowager to the highest offices of the Empire, he elevated his friend accordingly. After an experience in the Railway Administration of North China, and as soon as Yuan was made Governor of Shantung, he had Tang by his side as adviser. On Yuan's promotion in 1901 to the Viceroyalty of Chihli, his protégé was appointed as Customs Taotai of Tientsin, the choicest plum in the service below the grade of Governor. Following a special mission to Tibet in 1904, he was selected to negotiate the Tibet Convention at Calcutta with the Indian Government. This experience brought him a promotion as Vice-President of the Board of Foreign Affairs in 1905, and in the following year he was appointed Director General of the Shanghai-Nanking and Lu-han Railways, and afterwards returned to his former position.

On the reorganization of Manchuria into a viceroyalty Tang Shao-Yi was made first Governor of Mukden, under Viceroy Hsu Shih Chang.

It is safe to say that much of the progress and reform initiated under Viceroy Hsu was due to the influence and guiding hand of the more enlightened and experienced governor. In the short time he officiated at Mukden, Tang's efforts were mainly directed along lines calculated to check Japanese development of the province and correct the many infringements of China's rights and authority. In the matter of the Fakumen railway extension, it would appear that he went too far in his policy to outwit and disconcert Japan, and although the solution of the issue is still pending, China has failed in the attempt to create discord between Britain and her ally. Tang is a great believer in publicity, and while at Mukden was instrumental in getting China's side of the situation in Manchuria before the world, creating a revulsion of feeling against Japan that will take a long time to explain away.

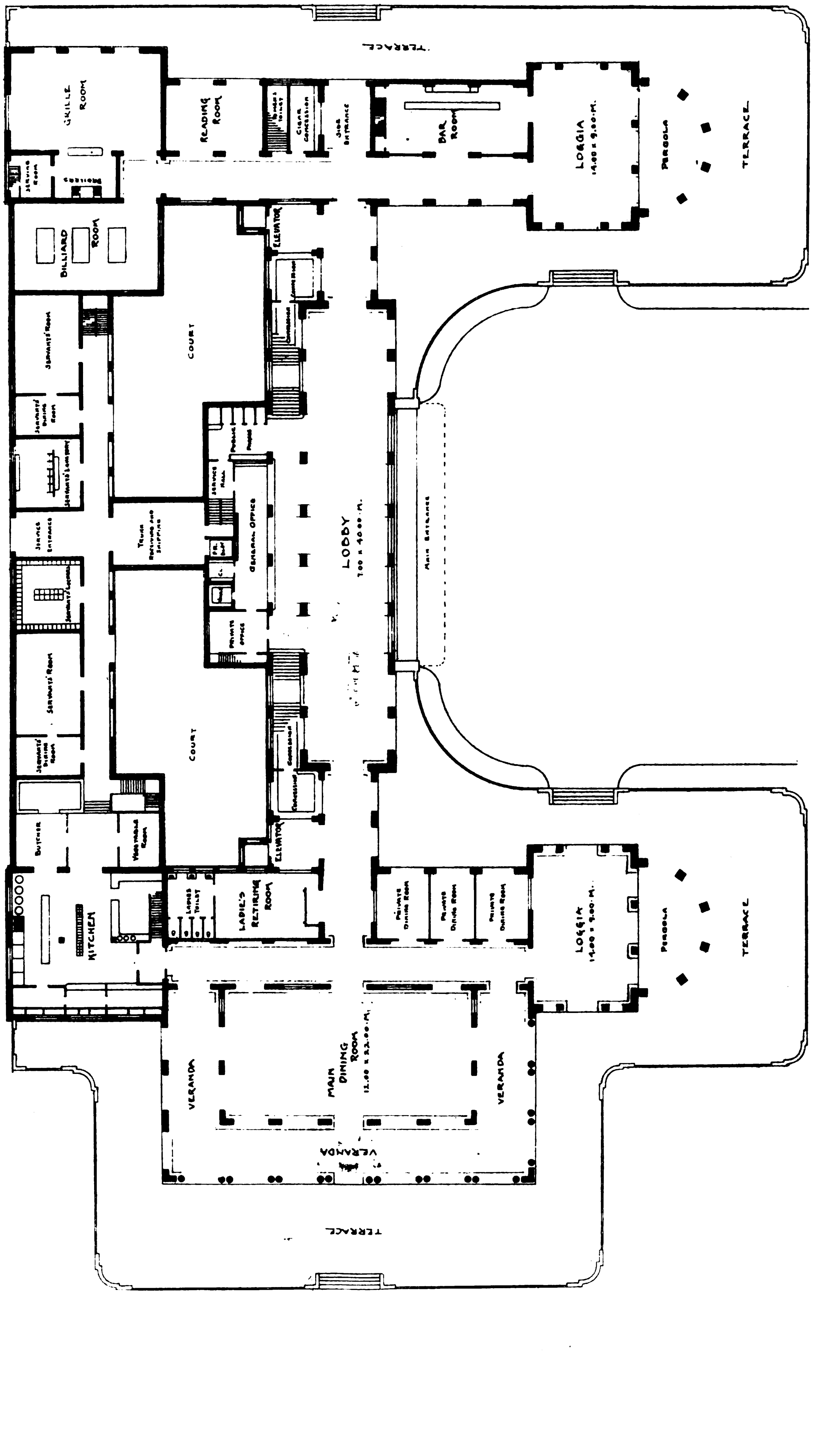
When the late Empress decided to send a special Ambassador to America to return thanks for the remission of the Boxer indemnity, Yuan Shih-Kai had his favorite appointed to this important mission. There is reason to believe that Tang had also been doing some clever diplomatic work on his own initiative in Mukden, and the departure of the American Consul, Mr. Straight, to Washington coincided with Tang's selection for the special mission. To save Manchuria to China, American or other interests were to be invited to enter the field, and so play off one power against the other.

Many questions of vital importance to China were on the tapis last year, and in the light of recent information it seems credible that the Embassy to America had for its purpose something of much greater import than an expression of gratitude for the return of the indemnity. The *New York Herald* had been advocating an alliance between America and China, and while serious Americans realized the impossibility of such an entanglement as opposed to all their traditions, many were found who argued in its favor. If Yuan Shih-Kai was misled by these arguments on behalf of the alliance, as reflecting the opinion of the American government, and deluded by the hope that it might be secretly negotiated, in which, according to reports from Peking, he was supported by Minister Wu Ting-Fang, he cannot be censured for instructing his protégé to sound the American government on the matter. Everything seemed favorable to the success of such a mission. For some time past, certain American publicists had advocated raising the American Legation at Peking to an Embassy, thus materially affecting China's status in her foreign relations; the assured election of Taft whose ideas on the Far East had been made clear in his speech at Shanghai in no uncertain manner; the return of the indemnity, and the visit of the American Battleship Fleet to Amoy, all seemed to indicate that America would receive in a friendly spirit a proposal having for its object the closer relations of the two countries through the medium of an alliance. It is asserted, in Peking, that the matter had reached the stage where Yuan Shih-Kai had taken the responsibility on his own shoulders to officially inform the American Minister that China would agree to the change in diplomatic representation which would have overturned all the traditions of the Empire. It is also reported that this action greatly angered the Regent when he learned of it, as the change would have given the Ambassador the right of personal audience, and meeting him on equal terms. Among the many reasons given for Yuan's precipitate dismissal his assumption of authority in this matter was the "last straw" which influenced the Regent's summary edict of retirement.

However, it is now accepted that Tang Shao-Yi's mission had some greater significance than the return of thanks, and it is clear that whatever it was, it has failed.

After leaving America, the mission travelled through Europe making a study of financial systems. During its absence the Imperial deaths and the dismissal of Yuan took place. Tang Shao-Yi has returned to Peking and submitted his memorial on financial reform. Native reports state that he was very cooly received by the Regent, and instead of a well merited promotion, he has been placed on "waiting orders" as an Expectant Vice-President of a Board, corresponding to an Assistant Secretary of Department in America. Bereft of the powerful influence of his old friend and patron, and exposed to the enmity of the old conservative Manchu clique, now in power at Peking, the future of the brilliant Cantonese diplomat is difficult to forecast. The shortage of skilled men at the head of affairs in China, however, leads to the hope that the ability of Tang Shao-Yi will again be recognized by the Regent and an appointment to some high post tendered him.

THE NEW MANILA HOTEL



FIRST FLOOR PLAN OF THE NEW MANILA HOTEL

The Manila Hotel Company has practically concluded arrangements for the erection of a four-story hotel with mezzanine containing 150 rooms on a most desirable site situated on the Luneta Extension and covering an area of 20,500 meters. The estimated cost of the hotel fully equipped and ready for occupancy is placed at ₱775,000. Of this amount ₱100,000 represents the value of the site; ₱525,000 for the building and ₱150,000 for furniture and fixtures. The capital necessary has been provided by the sale of ₱300,000 of stock in the company and the issue of ₱600,000 four per cent first mortgage hotel bonds, interest guaranteed by the Philippine Government. After equipping the hotel there will be ₱150,000 balance in the treasury for working capital.

It is expected that the work of laying the foundations will commence the first of December and the hotel be ready for occupancy within eighteen months after that date. The architects are Messrs. W. E. Parsons and Harry Allyn of Manila. In the prospectus recently issued, the directors announce that not a share would be sold at less than par; that there were no promotor profits; no profits or advantages of any kind to the organizers, and that the directors were serving without fees.

The accompanying plan gives an idea of the general arrangement of the hotel.

Basement.—This section will contain a barber shop, general men's toilet, a haber' dashery and boot black stand, five drummers-sample rooms, one kitchen and bakery, three store-rooms, one cold storage room, one servants' dining room, four employees' rooms with bathroom, one furniture storage and repair room, one baggage receiving and dispatching room, one servants' toilet and locker room.

First Floor.—A large main lobby, general office, manager's private office, public telephone and telegraph office, two grand staircases, main dining room with wide verandah, one banquet room, three private dining rooms, one ladies' retiring room and toilet, a serving room, men's lounging room, bar-room, side entrance, reading room, grille room, five concessions for cigars, newspapers, flowers, etc.

Mezzanine Floor.—Musical gallery over dining room, guests' parlor, children's dining room and play room, two suites, each comprising bed room, parlor, bath and dressing room, eighteen bed rooms with bath and dressing room each, one suite for the manager including bed room, dressing room and bath.

Second Floor.—Two suites, each consisting of parlor, two bed rooms, two dressing rooms and two bath rooms, two suites, each including parlor, bedroom, bath and dressing room, thirty-five bedrooms with bath and dressing room each.

Third Floor.—Two suites, consisting each of parlor, bed room, dressing room, and bath, thirty-five bed rooms with bath and a dressing room each.

Fourth Floor.—Two suites with parlor, bed room, dressing room and baths each, thirty five bedrooms each having bath and dressing room.

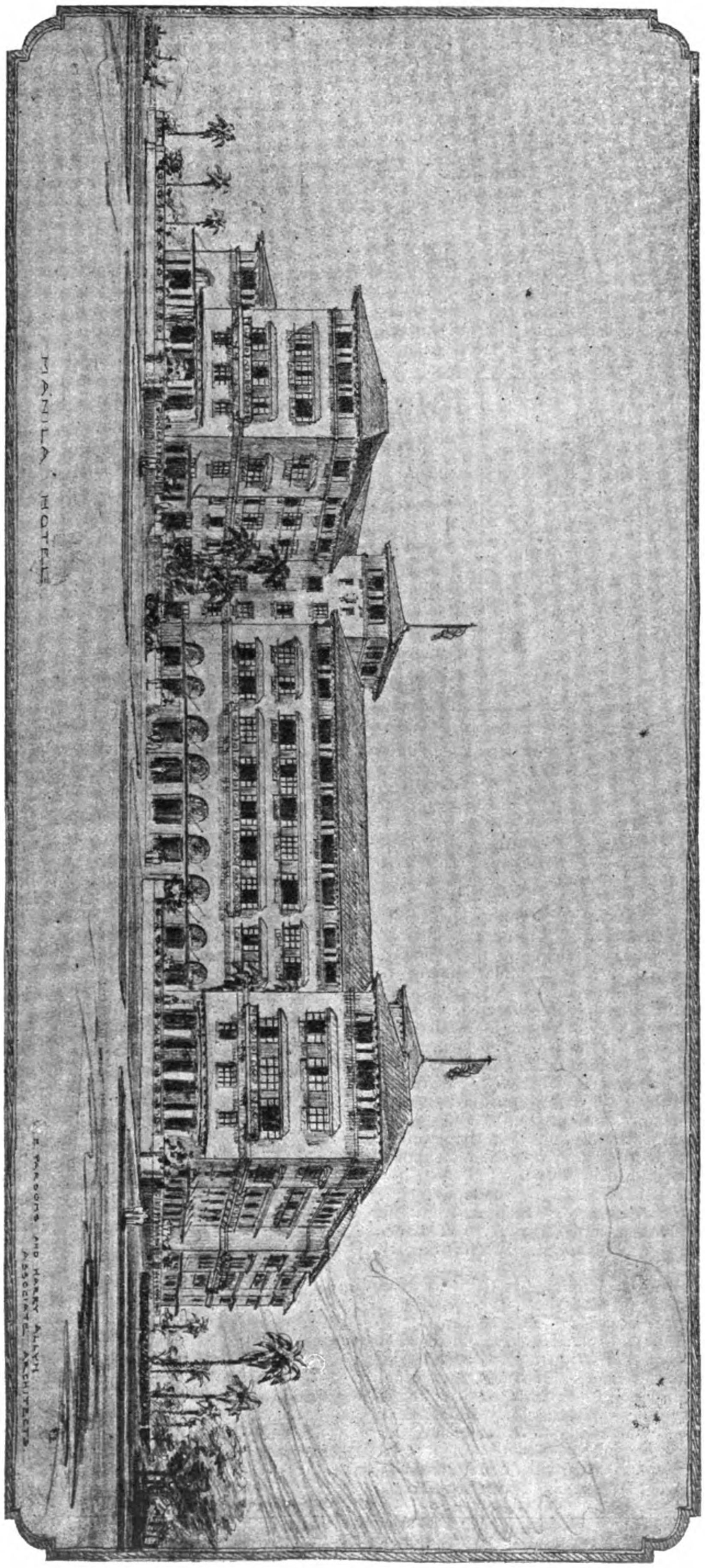
The entire construction will be of reinforced concrete and the inside finish in the finest Philippine hardwood. The solidity of the construction will exclude spaces between floors and in partitions for the accumulation and collection of dust and dirt during construction to later work out through cracks. It will also be ant and vermin proof. Provision will be made for the very best system of ventilation and light giving equal distribution to every room.

For this reason the hotel is designed in the form of the letter H, the main building having a 98 meter frontage, while the wings are 18 meters wide, on either side, and 55 meters long.

Large terraces will be built round the hotel as well as two large pergolas. The rooms are to be protected from severe storms by large media aguas over each window.

The hotel is to be so arranged that the dining room will offer a splendid view of Manila Bay and on the Luneta front the entire area will be laid out in delightful parks round the new and enlarged driveway where all Manila gathers every evening to enjoy the music and the cooling breezes from the bay.

The hotel will thus have the most delightful surroundings, and visitors from abroad who patronize it will have the advantage of living in the most attractive spot among many that Manila has to offer.



THE NEW MANILA HOTEL IN PERSPECTIVE

PROTECTION BY GRADING OF PHILIPPINE CIGARS

With the passage of the Payne Bill extending to the Philippine Islands limited free entry of tobacco, it became apparent to the Insular administration that, unless some provision was made to grade the product exported, the United States might be flooded with inferior product and ultimately destroy the island trade with the home country. The Payne Bill provides for the free entry of 150,000,000 Philippine cigars during every twelve months. This means that there is a market for the best grade manufactured in the islands or at least for standard grades. To permit the cheap under standard cigar to become the accepted standard cigar of the Philippines would mean that it would only be a short time until a general prejudice against the Philippine cigar would make the recent free trade concession of little of any value to the industry and practically destroy the market there.

With the purpose in view of protecting this trade and guaranteeing quality to the American importer and consumer, the Philippine Government has provided regulations requiring grading and labeling under the direction of the Internal Revenue Bureau that meets the situation.

87770-42

PHILIPPINE ISLANDS.

OFFICIAL CIGAR EXPORT STAMP.

Manufactured, Graded and Packed Under Government Supervision.

QUALITY

STANDARD

FOR THIS BRAND

Made by cleanly operatives in a Sanitary Factory under control of the Bureau of Health, from sound Philippine Tobacco grown in the Cagayan Valley.

BUREAU OF INTERNAL REVENUE.

FACSIMILE OF INTERNAL REVENUE STAMP FOR PHILIPPINE CIGARS AND CIGARETTES. THE WORDS "SELECTED" AND "BELOW STANDARD" ARE SUBSTITUTED FOR THE WORD "STANDARD" WHERE THE STAMP IS AFFIXED TO THESE GRADES.

The following circular was issued, August 10th, by the Collector of Internal Revenue addressed to all internal revenue officers throughout the islands:

"Before the removal of cigars, cigarettes, and manufactured tobacco from the place of manufacture for exportation to the United States, there shall be affixed, under the supervision of the Collector of Internal Revenue, or his duly authorized representative, to each package of cigars, cigarettes, or manufactured tobacco, an official certificate in the form of an export stamp, on which shall be shown the quality of the manufactured article to be graded in accordance with the rules approved by the secretary of finance and justice."

The following are the rules for the grading of tobacco products before removal for exports to the United States:

"CIGARS.—*Standard*: To be made of good, sound, and clean tobacco exclusively from the provinces of Isabela and Cagayan, well made, with suitable wrappers, and neatly and properly packed.

Below Standard: Lacking in any of the requirements for STANDARD.

"CIGARETTES.—*Selected*: To be made of Isabela and Cagayan tobacco, specially selected by leaf, and each leaf stripped of stems and the cigarettes made by hand: Provided, that when all other requirements are fulfilled, well made machine cigarettes will be graded as SELECTED.

Standard: To be made of Isabela and Cagayan tobacco, properly cured, sound, and clean, and to which may be added tobacco of other provinces if likewise properly cured, sound, and clean.

Below Standard: Lacking in any of the requirements for STANDARD.

"SMOKING TOBACCO.—*Standard*: To be made of Isabela and Cagayan tobacco, properly cured, sound, and clean, and to which may be added tobacco of other provinces if likewise properly cured, sound, and clean.

Below Standard: Lacking in any of the requirements for STANDARD."

The stamp affixed is one and one-half inches wide by two and one-half inches in length. It is identical in form as in illustration herewith reduced to the size indicated. The label for "Selected" is printed in green ink; "Standard" in blue ink, and "Below Standard" in red ink.

With proper care in examining labels, importers and consumers in the United States will thus escape being imposed upon and the reputation of Manila cigars maintained.

The export of Philippine cigars to the United States having the benefit of the provisions of the Payne Bill to date is approximately 2,000,000 and all of standard or over standard grades so far as has been learned.

One provision of the bill that has caused some misunderstanding is to the effect that all cigars shipped from the Philippines to the United States must proceed in one bottom or in bond direct. The benefits of the bill in this respect will not apply in case of transhipment. It is understood that some shipments made previous to the passage of the bill have been held up on account of the violation of this provision. The Bureau of Insular Affairs at Washington is greatly interested in giving the product of the Philippines ample protection.

In connection with the provisions of the Payne Bill, the Philippine Government has authorized the collection of internal revenue in the Islands on importations of manufactured tobacco and other articles. The following regulations covering this have been issued by the Bureau of Internal Revenue:

1. The following articles, when imported, are made subject to the payment of Internal Revenue taxes by the provisions of Act 1189, as amended by Act 1940, effective on August 7, 1909:

Schedule A, Par. 1.—(a) Distilled spirits and manufactured liquors produced by the fermentation of grain, seventy centavos per proof liter.

Compound or mixed liquors, any portion of which is grain spirits, will be considered as grain spirits and taxed at seventy centavos per proof liter.

(b) Distilled spirits and manufactured liquors produced by the fermentation of all other substances, twenty centavos per proof liter until January 1, 1910, and thereafter twenty-five centavos per proof liter.

Schedule A, Par. 2.—Beer, ale, porter, etc., four centavos per gauge liter.

Schedule A, Par. 3.—(a) Manufactured tobacco, forty eight centavos per kilo. (b) Snuff thirty-two centavos per kilo.

Schedule A. Par. 4.—Cigars, (a) when the wholesale price is twenty pesos per thousand or less, two pesos per thousand: (b) when the wholesale price is over twenty pesos, but not over fifty pesos per thousand, four pesos per thousand; (c) when the whole sale price exceeds fifty pesos per thousand, six pesos per thousand.

Schedule A, Par. 5.—(a) Cigarettes not exceeding in weight two kilos per thousand, sixty-seven centavos per thousand until January 1, 1910, and thereafter one peso per thousand: (b) cigarettes exceeding in weight two kilos per thousand, two pesos per thousand.

Schedule A, Par. 6.—Matches. (a) On each gross of boxes containing not more than one hundred and twenty sticks to the box, forty centavos, (b) and a proportionate additional tax where the boxes contain more than one hundred and twenty sticks.

Schedule A, Par. 7.—(a) Still wines containing fourteen per centum of alcohol or less, eight centavos per gauge liter. (b) Still wines containing more than fourteen per centum of alcohol, fifteen centavos per gauge liter.

(c) Sparkling wines, one peso per gauge liter.

NOTE.—Attention is invited to the fact that A-7 is a new paragraph to cover still and sparkling wines.

2. The collection of the above taxes will be made by the affixture of Internal Revenue stamps to an Internal Revenue Schedule A, Par. 1, 2, 3, 4, 5, 6, or 7 miscellaneous invoice, upon presentation of which to the Customs authorities the consignment will be released, after verification and payment of any Customs duties that may be due thereon.

Invoices as required above will be issued in the City of Manila by the Collector of Internal Revenue, and in the provinces having open ports by the provincial treasurer, upon presentation of a statement from the Collector of Customs showing the class of goods imported, the quantity in kilos or gauge liters, and if distilled spirits or still wines, the percentage of alcohol contained therein, the number of the import entry, the name of the vessel by which received and the date.

All requisitions for the purchase of stamps in payment of Internal Revenue taxes on imported articles, and all invoices to which such stamps are affixed, shall have written or stamped in red ink across the heading the word "Imported." The same notation will also be made opposite entries on provincial treasurer's miscellaneous transcript sheet rendered to this Office.

3. Taxable articles now held in Manila Customs bonded warehouses which are exempt from Customs duties, may be transferred to the Internal Revenue bonded warehouse upon application of the importer, and the tax collected on same upon removal therefrom in the manner provided in 2 above. For the present no Internal Revenue bonded warehouse will be established outside of Manila; therefore, Internal Revenue taxes on shipments imported through provincial ports must be paid when goods are cleared from the Custom House.

In case of shipments arriving at the port of Manila from the United States subsequent to August 7, 1909, the importer may, if he so desires, enter any part or all of the consignment direct into the Internal Revenue bonded warehouse and remove same therefrom at any time subsequent thereto, by the payment of the Internal Revenue taxes and any warehouse fees that may be due on same.

Shipments arriving from countries other than the United States may be cleared in any one of the three following manners:

(1) By the payment of the Customs duties and Internal Revenue taxes, after which delivery will be made direct from the Custom House by the Customs authorities, upon presentation of the stamped invoice as required in 2 above.

(2) If an importer does not desire at the time of entry to pay the Customs duties or the Internal Revenue taxes, he may under regulations of the Insular Collector of Customs enter same in Customs bonded warehouse and pay the duties and internal revenue taxes on same upon removal therefrom.

(3) An importer desirous of paying the Customs duties on a consignment and deferring the payment of the Internal Revenue taxes may pay the Customs duties, whereupon the consignment will be transferred by the Customs authorities to the Internal Revenue bonded warehouse, from which it may be removed upon payment of the Internal Revenue taxes as provided above.

(4) Upon removal of taxable articles from the Custom house or Internal Revenue bonded warehouse for delivery to the importer, each package shall be marked with the schedule, paragraph, assessment, and invoice numbers of the invoice upon which the tax was paid, and shall likewise bear its serial number.

Upon being released from Customs or Internal Revenue custody, taxable articles shall be taken up in the wholesale dealer's official register book, B 6-8 or B 9, and the schedule, paragraph, assessment, and invoice numbers of the invoice upon which the tax was paid, together with the serial numbers of the packages, noted therein.

THE PARACALE EXTENSION GOLD DREDGING CO.

The above company has been formed under the laws of the Philippine Islands with a capital of ₱450,000 divided into 45,000 shares at ₱10 each. 17,500 shares were exchanged for the property comprising two claims of placer ground situated between the property of Paracale Gold Dredging Company and that of the Stanley-Paracale Gold Dredging Company now being operated to great advantage. It is the purpose of the company to sell 15,000 shares at par for the purchase of two dredges, and it is expected that one of them will be operating by the end of eight months. The directors of the company are: Mr. Joseph Pearson, M. A. Clarke, Nels Peterson, Fred C. Fisher and J. V. Lafferty. Mr. Pearson is one of the pioneer gold dredging men in the islands and represents New Zealand capital that has been so liberally and successfully invested in the Paracale district. The other gentlemen are well-known Manila business men whose names have ever been associated with successful enterprise.

THE MADISON GOLD MINING COMPANY

This company owns nine claims in the now famous Antimok District in Benguet located southeast of the Bua Mining Company's property. The development work accomplished comprises cross cuts on the principal vein by tunnels running northeast. This vein is of manganese and calcite, runs through six of the group of claims a distance of 6,000 feet. Upper tunnel No. 1 is 70 feet in length and encounters the vein 40 feet from the mouth of the tunnel. Then it follows it for 27 feet. Ore values in the center of the vein average $15.50 per ton. Lower tunnel No. 2 opens 170 feet southeast of lower tunnel No. 1 and cuts the same body of ore assaying at a point where the ore is 12 feet in width about $9.86. Assays from another vein tapped by a tunnel 75 feet in length where the lead is of pure calcite and four feet in width averages from $29.84 to $52.50.

A company has been formed with a capital of ₱600,000, of which one-half has been exchanged for the property in its present stage of development. These shares have a par value of ₱1.00 a share. The directors of the company are: Dr. J. R. McDill, John W. Haussermann, H. P. Whitmarsh, C. J. Bayer, and Charles C. Cohn. Development funds have been realized by the contribution made by the present shareholders of 25,000 shares to be sold at 40 centavos and this sum will be utilized for further development work during the year. At the present time there are 10,000 tons of $8 ore blocked out. There is plenty of water for power for a twenty stamp mill and timbering is plentiful in that vicinity. After the sale of the contributed stock at 40 centavos, further sales of stock from the treasury will be at par.

This property is located in what is known as the producing section of Antimok and there is every indication, that the company's efforts to develop the deposits there will be crowned with success.

FAR EASTERN RAILWAY NEWS

Shanghai-Nanking Railway.—The budget for the six months ending December 31st, 1909, estimates the gross earnings for the term at Tls. 846,000; working expenses, Tls. 616,000, which makes the estimated net earnings Tls. 230,000. The estimated working expenses is thus placed at about 73% of the gross earnings of which 43% is chargeable to the Chinese department. These estimates are very conservative. It is expected that the passenger earnings will exceed Tls. 7,500 per mile open which is considered very satisfactory and compares favorably with the Imperial lines. The freight receipts have been disappointing during the year, but are slowly increasing and the removal or reduction of the likin should initiate a great improvement. The following is a comparative table covering the three preceding half-year terms and the estimate for the latter half of 1909:

	Ended June 30th, 1908.	Ended Dec. 31st, 1908.	Ended June 30th, 1909.	Estimated June 30th, 1909.
	Tls.	Tls.	Tls.	Tls.
Gross Earnings. . .	823,000	786,815	880,000	846,000
Working Expenses.	518,000	574,261	602,000	616,000
Net Earnings . . .	305,000	212,000	278,000	230,000

Increased mileage and elimination of charges against capital are responsible for the increased expense noted in the estimates. The reduction of the expenditure in the maintenance of the Chinese department is considered feasible without injury to the efficiency and indeed it is believed would greatly expedite the conduct of the different departments of the railway should many of its ramifications be restricted or eliminated.

South Manchurian Railway Hospital.—The large extension to this institution at Dairen was expected ready for occupancy by the end of this month. It will be thoroughly equipped with the most modern conveniences, and a large and competent staff chosen from the most experienced medical men in the empire will be in charge.

British North Borneo Railways.—The receipts from all sources of traffic for May amounted to $7,106.95 and the expenditure $13,068.64. The large increase in expenditure was due to debit notes for material, etc., charges that should have gone to the debit of capital account. The entire length of railways in British North Borneo is about 120 miles and includes the 90 mile line connecting Tenom and Jesselton; 20 miles on the Weston-Beaufort section and the balance of distance in small branches to these lines. Surveys have been made from Tenom to Tawao and a branch up the Sook Valley has been practically decided on. Chas. F. Ashton-Pryke Esq. has been acting General Manager of Railways during the absence of General Manager W. J. Conn who was recently elected a member of the Royal Society of Arts and is one of the most widely known British railway engineers.

Korean Railways.—The program for railway construction in Korea under the resident general is covered by estimates which will reach approximately the sum of Yen 40,000,000. This includes the building of the Phyon-nam Railway at a cost of about yen 2,000,000; the Seoul-Gesan Railway at a cost of about yen 20,000,000 and the Ho-nam line which is believed will cost yen 18,000,000 to complete. Nothing will be done this year to improve and extend the Seoul-Wiju line and as soon as the estimates are approved by the Diet, construction work will begin on the three lines referred to.

Federated Malay States Railways.—The report for the year 1908 shows an increase of mileage of 39 miles by the taking over of Sungei Ujong Railway and the opening of the Ipoh-Tronoh branch, making in all, including sidings, 543 miles in operation under the control of the government. The total investment including $3,460,000 approximately expended during the year amounts to about $45,500,000. The capital outlay, including that on lines under construction and the Johore Railway loan with surveys, etc., amounts to about 13,000,000 dollars. The gross earnings amounted to over $5,000,000, a decrease of $225,000 approximately compared with the results of the previous year. The expenditure amounted to about $3,450,000 leaving a net profit of $1,588,390 or an actual return of 3.49% on capital. There was decrease generally in traffic receipts, there being approximately 6,400,000 passengers, 600,000 tons of freight and 72,400 head of live stock. Seventeen new stations were opened including 14 telegraph stations; 244 locomotives and 244 freight cars were added to the rolling stock during the year.

The death of General Manager C. E. Spooner recently is deeply regretted and is a severe loss to the Government. He had been identified with the great strides made in welding the different states together by one of the most important systems of railways in the Far East. He was a characteristic pioneer and his memory will be cherished by his countrymen in the states more and more as the benefits of his life work are realized in the rapid development of this important area. D. J. Highet Esq. has been in charge as acting manager.

The Johore State Railway.—This railway which represents four years' work and which connects Johore Bharu and Kuala Lumpur, a distance of 121 miles 48 chains, was formally opened on July 1st and trains were run over the line from each terminal. Construction was carried on from both ends simultaneously through difficult jungle with but little exception. One point about two miles in length ran through a marsh and over 200,000 cubic yards of earth were dumped in here to make the embankment permanent. There are 19 bridges of 100 foot span, one bridge of five spans of 100 feet each, one 200 foot bridge and one three-span bridge of 100 feet each. The sleepers used were of Australian jarra and Johore chengai. The carriages for the line were built of chengai at the F. M. S. Railway shops. The country traversed is quite level, the highest point being about 230 feet above sea level. The deepest cut did not exceed 40 feet and the maximum embankment was about 35 feet in height. The opening of this line completes railway communication between Singapore and Johore. The ferry at the straits is not yet complete, but a steamer belonging to the Kranji Railway was used to cross without inconvenience.

Indian Railways.—From 20 miles of railway completed in 1853 the Indian system according to the latest report comprises over 30,576 miles of line covering British India almost like a net work. The capital liability of the state railways alone represent £309,123,355. There are 525,583 persons employed of which 7,344 are Europeans, 9,951 Eurasians and 508,288 Indians. The average rate for passenger fare of all classes is not over one-fifth of an English penny. Last year over 321,000,000 tickets were sold.

Tientsin Terminus.—The site of the terminal station of the Tientsin-Pukow is to be located at Chao Chin-chang.

The Moji-Shimonoseki-Moji Railway Ferry The work of constructing the embankments on either side of the strait is progressing rapidly extending on the Moji side as far as Dairi and on the other side as far as Takesaki. It is expected that this part of the work will be completed late this fall. The service when completed according to present plans includes a fleet of about 800 ferry boats divided into three separate lines and each ferry having a capacity of about 30 cars.

AUSTRALIAN RAILWAY DEVELOPMENT.—Cabled advices state that the survey of the route for the projected railway from Port Augusta in South Australia to Kalgoorlie on the Western Australian goldfields, 1,070 miles in length, has been completed. The report of the survey parties is favourable. No serious engineering difficulties are anticipated and the cost will be comparatively low. The proposed line will furnish trans-continental communication from east to west linking up the railways of the eastern and southern districts and considerably expediting the transport of the European mails.

PEKING-HANKOW PROFITS.—The management of the Peking-Hankow estimate that the years net profit will exceed Tls. 10,000,000 and it is understood that this sum if realized shall be utilized in redeeming the Shanghai-Ningpo Railway.

CHINESE RAILWAY SUPPLIES.—The Peking railway authorities have issued instructions that all the different Chinese companies must purchase rolling stock as they may require it from the Tangshan and Changsin Works to the extent of the shops' capacity.

BEHRING STRAIT RAILWAY AND TUNNEL.—British engineers are reported to be engaged in making a survey of the straits for the purpose of reporting on the feasibility of connecting the mainland of Siberia with Alaska by means of a tunnel under the Behring Straits. This is another phase of a much talked of project that at one time received the approval of the Czar.

CHINCHOW-TAN NAN RAILWAY.—The construction of a line between these two points and to be extended to connect with the Trans-Siberian railway has been authorized according to the *P. & T. Times*.

FORMOSAN RAILWAYS.—The Japanese government is interested in providing better means of transportation in the almost inaccessible eastern section of Formosa and a survey of a railway to connect Taito and Karenko is now under way.

PEKING-KALGAN RAILWAY.—This important line has been completed, but regular service has not yet been established beyond Suenhwa.

ANGLO-SIAMESE RAILWAY LOAN AGREEMENT.—This Agreement, made this tenth day of March, 1909, between the Government of the Federated Malay States (hereinafter called "the lender") and the Railway Department of the Kingdom of Siam (hereinafter called "the borrower.")

WITNESSETH AS FOLLOWS:

1. The lender agrees to advance to the borrower a sum of money not to exceed four million pounds (£4,000,000) sterling on the terms and for the purpose hereinafter mentioned.

2. The moneys received by the borrower under this Agreement shall be devoted to the construction, equipment, maintenance, and operation of the railways of the borrower in the Siamese dominions of the Malay Peninsula. These objects shall be held to include such matters (for example, telegraph and telephone lines, terminal wharves, etc.) as are usually incident to the construction, equipment, maintenance, and operation of railway lines.

3. The above sum shall be paid to the borrower in London in partial payments, as demanded by him from time to time; provided, however, that the demands so made may not exceed a total of seven hundred and fifty thousand pounds (£750,000) in any one year. The lender also reserves the privilege of notifying the borrower at any time that in future he will require three months' written notice of any demand for such partial payments.

4. The borrower shall pay interest at the rate of four per cent (4%) per annum on the moneys actually received by him from time to time. Interest shall run on the respective partial payments from the date they are received by the borrower. Interest shall be payable at half-yearly intervals, that is to say, on the 1st January and the 1st July in each year.

5. Payments of interest and principal shall be made in London.

6. The amortization of the loan will be effected within a period of forty years by yearly annuities according to the Table attached to this agreement. The first redemption will take place within fifteen years fom the date of this agreement.

At any time after the expiration of ten years from the present date, the borrower shall have the right to redeem at par all or any part of the principal remaining unpaid. In case, however, the borrower intends to anticipate redemption by larger payments than those provided for by the Table of Amortization, he shall give three months' notice to the lender.

7. For the repayment of the principal and interest due under this agreement, the borrower pledges as security the sections of railway, above referred to, as those sections are successively constructed. If, therefore, at any time the borrower fail to pay any sum, whether of principal or interest, due by him under this agreement, and if such default continue for a period of not less than six months, the lender shall be at liberty to enter into possession of the sections of the railway then completed under this agreement, and to work the same until the default has been made good. The net profits obtained by the lender from any such working shall be set off against the indebtedness of the borrower.

8. Since the proceeds of this loan are to be used for the specific purpose mentioned in Section 2 hereof, it is agreed that, until the completion of the construction of the lines to be built under this agreement, the construction, equipment, maintenance and operation of those lines shall be kept distinct from that of the other railways of the borrower.

9. The borrower shall keep such books and accounts as shall be necessary to show the amount expended by him from time to time out of the sums received by him from the lender under this agreement. These books and accounts shall be open to inspection by the lender at all reasonable times so that he may satisfy himself that the moneys advanced by him have been applied to the purposes for which they were lent.

The Railway Department of the Federated Malay States shall be at liberty to inspect the plans, showing the route along which the railway is proposed to be constructed, the sections, specifications, and estimates of the cost of the railway, and the number and locality of its sidings, stations, level crossings, goods sheds, signal stations, and other works from time to time, as the survey and preparation of working drawings proceeds.

In witness whereof the parties hereto, acting by their duly authorised representatives, have hereunto set their hands on the day first abovementioned, at Bangkok.

OBITUARY

Mr. Charles G. Warnford Lock, the well-known mining authority, author, and expert passed out at Bandarawella, Ceylon, on July, 30th, from heart failure. Of his career, the *Singapore Free Press* says:

Mr. Lock first came to the Straits in June 1902, to become manager of Raub Gold Mine, a position which he held for about four years, leaving the company in 1906. Thereafter he was in the Peninsula as a mining engineer and expert, and we believe reported on Sempam Mine, among others. He stayed in Singapore for some time, and his wife came out here in April, 1907. His age must have been close on sixty.

Mr. Warnford Lock's qualifications were F. G. S., M. I. M. M., and he had been engaged, professionally, in Iceland, Austria, British Columbia, and New South Wales. He was a great writer and some of his books are "The Home of the Eddas," "Practical Gold Mining," "Gold Milling," "The Miners' Pocket Book" and "Mining in the Malay Peninsula," the last named being issued only a few years ago.

CONTRACTING NEWS

BANGKOK STEEL MARKET.—For the supply of materials and construction tenders submitted separately for corrugated iron roofing, asbestos tile roofing and cement tile roofing respectively and included in bid for contract complete as follows: Bangkok Dock, Ticals 39,000, 47,200, 46,000; Howarth Erskine, 40,830 55,745, 54,120; J. M. Dunlop, one bid corrugated iron roof, 44,500; G. Kluzer & Co., corrugated iron, 35,700; asbestos tiles, 40,300. The bids were opened July 3rd but no award was made.

SHANGHAI CEMENT CONTRACT.—The following tenders were accepted by the municipality of Shanghai for the supply of cement for the year:

Shewan, Tomes & Co. "Green Island." 350 casks per mensem at Tls. 3.50 per cask.

Ilbert & Co. "Dragon." 100 casks per mensem at Tls. 3.20 per cask.

East Asiatic Co., Ltd. "Buffalo." 100 casks per mensem at Tls. 3.44 per cask.

The remaining tenders are as follows:—

Dodwell & Co., Ltd., "Unicorn", Tls 3.45 per cask.

Chee Hsin Cement Co., Ltd., Tls. 3.45 per cask.

Takata & Co., "Aichi", Tls 4.59 per cask.

CHIEF QUARTERMATERS.—Six Steam Launches —Contract awarded Hongkong and Whampoa Dock Company.

CHIEF QUARTERMASTER.—Light Twin Screw River Steamer.—Contract awarded the Hongkong and Whampoa Dock Co., Ltd.

SANITATION SYSTEM, BILIBID PRISON, MANILA. American Hardware and Plumbing Company: Section A, ₱15,972.44; Section B, ₱5,974.62; Section C, ₱1,406.31; Lambert-Springer: Section A, alternate proposals, ₱9,997.70 and ₱12,666.72; Section B, ₱1,440.00; Section C, ₱495.00. No award has been made.

ELECTRICAL SUPPLIES, MUNICIPALITY SHANGHAI.—Tenders are invited for the following:

A.—The supply and delivery at the Electricity Works, c.i.f., duty paid, of 9,700 Carbon Filament Incandescent Lamps.

B.—The supply and delivery at the Electricity Works, c.i.f., duty paid, of 23,250 Metallic Filament Lamps.

C.—The supply, delivery and erection at the Electricity Works, c.i.f., duty paid, of an Electric Goods Lift, capable of raising and lowering a load of 2½ tons.

Conditions, specifications, forms of tender and all necessary information may be obtained upon application to the Electrical Engineer, Mr. T. H. U. Aldridge, at the Works, 31 Fearon Road.

A charge of Tls. 25 will be made for each specification, which will be returned upon the receipt of a *bona fide* tender.

Sealed tenders will be received by the undersigned as follows:—

A.—marked "Tender for Carbon Lamps" not later than noon on Thursday, September 30, 1909.

B.—marked "Tender for Metallic Lamps," not later than noon on Thursday, September 30, 1909.

C.—marked "Tender for Electric Lift," not later than noon on Monday, August 9, 1909.

The Council does not bind itself to accept the lowest or any tender, or to pay any expenses which the contractor may incur in tendering.

The names of tenderers, with the prices quoted, will be published for general information.—By order, W. E. LEVESON, *Secretary*.

BALLAST.—CANTON KOWLOON RAILWAY.—Tenders are invited for the supply at Lofu (Sam Chun) of 3,200 fongs (100 English c. ft. each fong) of RUBBLE STONE and of 3,200 fongs of BROKEN STONE under the following conditions and specification:—

Qualty of Stone.—To be be hard and clean. Sample to be submitted with tender. No stone will be paid for not strictly to sample.

Rubble.—No piece to exceed 10 in.×10 in. *Broken Stone.*—To pass through 2½ in. ring. *Contract.*—To be completed within six months of signing. *Deposit.*—10% of value of contract to be deposited in cash as security. *Place.*—Stone to be stacked within 500 ft. of river bank at Railway crossing, Lofu. *Payment.*—To be monthly and by measurement. *Contract Form.*—To be the Railway standard. The undersigned does not bind himself to accept the lowest or any tender, which should be delivered before August 31st, 1909.

TIENTSIN-PUKOW RAILROAD.—Steel Truss Girders.—Tenders invited for the supply of the following steel truss-girders:—Indent 62—4 Spans of deck girders, 100 feet clear span. 3 Spans of through girders, 200 feet clear span.—Indent 63—7 Spans of through girders, 200 feet clear span, or any less quantity.

The above to be executed in accordance with the instructions and to the satisfaction of Messrs. Baker and Hurtzig, of 2 Queen Anne's Mansions, Westminster, from whom full particulars, specifications and drawings can be obtained and without whose certificate no work will be accepted.

The girders to be delivered ex Ship's Slings on the Railway Wharf at Pukow at the sole risk of the contractor and free of all charges except duty, on or before the following dates:—Indent 62—on or before 31st July, 1910.—Indent 63—on or before 30th September, 1910.

Payment will be made in sterling in Shanghai or London at the contractor's option 10 days after the acceptance of each complete indent.

Tenderers must quote in sterling and the names of proposed makers must be stated.

Tenders should be addressed to the Managing Director, Tientsin-Pukow Railway, Southern Section, Nanking, and should be clearly marked on the outside "Tenders for Indents 62 and 63, Steel Truss Girders." They should reach this office on or before Tuesday, 14th September, 1909.

Tenders will be publicly opened at 10 a. m., on Wednesday, September 15th, 1909.

The Managing Director does not bind himself to accept the lowest or any tender.

F. M. S. OUTPUT FOR JUNE

	Piculs		Piculs
Belat	760	Pengkalen	300
Bruang	139	Pusing Lama	539
Bruseh	250	Rambutan	260
Gopeng	600	Redhills	930
Kanaboi	387	Royal Johore	87
Kinta	450	Salak South	572
Kledang	320	Sempam	55
Kuantan	97	Serendah	311
Lahat	950	Sipiau	131
New Gopeng	136	Tekka	570
Pahang C'ted	1600	Tronoh	3120

PHILIPPINE GOLD OUTPUT

Benguet Consolidated Mining Co. for July, 192 ounces bullion, 250 pounds cyanide.

The Paracale Gold Dredging Company for July, 520 ounces.

FOR SALE

Patent Slip supplied to H. H. The Rajah of Sarawak by Messrs. Day Summers & Co., Ltd., of the Northam Ironworks, Southampton, England, for sale f. o. b. Kuching, Sarawak. The Slipway has never been erected and was designed to take a vessel of a total displacement of 570 tons, 44′ 6″ over paddle-boxes, 175 ft. long drawing 1′ 1½.″ All complete including winding gear and rails, except for the boiler and can be seen lying here. Full particulars will be supplied to any bona fide enquirer on application being made to the undersigned.—H.F. CAREW-GIBSON, *Commissioner of Public Works and Surveys.*

FAR EASTERN COMPANY REPORTS

HONGKONG AND SHANGHAI BANKING CORPORATION.—The following is the 88th report of the court of directors submitted at the half yearly general meeting of the shareholders at the City Hall, Hongkong, August 21st:—

Gentlemen.—The Directors have now to submit to you a general statement of the affairs of the bank, and balance sheet for the half-year ending 30th June, 1909.

The net profits for that period, including $2,006,234.08, balance brought forward from last account, after paying all charges, deducting interest paid and due and making provisions for bad and doubtful accounts, amount to $5,493,446.41.

The Directors recommend the transfer of $750,000 from the profit and loss account to credit of the silver reserve fund, which fund will then stand at $15,250,000.

After making this transfer and deducting remunerations to directors there remains for appropriation $4,728,446.41, out of which the directors recommend the payment of a dividend of two pounds sterling per share, viz.: £240,000, which at 1-9⅛, the rate of the day, will absorb $2,726,627.22.

The balance, $2,001,819.19, to be carried to new profit and loss account.

Branches and Agencies.—A branch office of the bank was opened at Canton on the 6th July.

Directors.—Mr. G. Friesland having resigned his seat on leaving the Colony, Mr. J. W. Bandow has been invited to fill the vacancy; this appointment requires confirmation at this meeting.

Auditors.—The accounts have been audited by Mr. W. Hutton Potts and Mr. J. W. C. Bonnar.

W. J. GRESSON,
Chairman.

Hongkong, 10th August, 1909.

LIABILITIES.

Paid up capital		$ 15,000,000.00
Sterling reserve fund £1,500,000 @ ex. 2		15,000,000.00
Silver reserve fund		14,500,000.00
Marine insurance account		250,000.00
Notes in circulation:—(Authorized issue against securities and coin deposited with the Crown Agents for the Colonies and their trustees, $15,000,000.00)		14,149,703.00
Current accounts:—		
Silver	$95,414,652.37	
Gold £4,992,726 1s. 5d.	56,730,866.07	
		152,145,518.44
Fixed deposits:—		
Silver	$62,034,168.86	
Gold £4,661,536 12s. 1d.	52,964,800.97	
		114,998,969.83
Bills payable (including drafts on London bankers, call loans and short sight drawings on London office against bills receivable and bullion shipments)		14,063,599.17
Profit and loss account		5,493,446.41
Liability on bills of exchange re-discounted, £4,972,346 3s. 10d., of which $3,671,148 14s. 5d. have since run off.		
		$345,601,236.85

ASSETS.

Cash		$ 55,260,909.72
Coin lodged with the Hongkong Government against authorized and or excess note circulation		13,000,000.00
Bullion in hand and in transit		4,318,503.50
Indian government rupee paper		2,099,088.72
Consols colonial and other securities		10,213,250.76
Sterling reserve fund investment viz.:—		
£1,208,000 2½ per cent. consols at 82	£ 990,560	
(of which £250,000 lodged with the Bank of England as a Special London Reserve.)		
£255,000 2¾ per cent. national war loan at 90	229,500	
£325,000 other sterling securities written down to	279,940	
	£1,500,000 at ex. 2/-	$15,000,000.00
Bills discounted, loans and credits		113,046,509.47
Bills receivable		130,763,412.03
Bank premises		1,899,562.65
		$345,601,236.85

GENERAL PROFIT AND LOSS ACCOUNT.

Dr.

To amounts written off:—		
Remuneration to Directors	$	15,000.00
To dividend account:—		
£2 per share on 120,000 shares =£240,000 at 1-9⅛=		2,726,627.22
To transfer to silver reserve fund		750,000.00
To balance forward to next half-year		2,001,819.19
		$ 5,493,446.41

Cr.

By balance of undivided profits 31st Dec., 1908	$2,006,234.08	
By amount of net profits for the six months ending 30th June, 1909, after making provision for bad and doubtful debts, deducting all expenses and interest paid and due	3,487,212.33	
		$ 5,493,446.41
		$ 5,493,446.41

STERLING RESERVE FUND.

To balance, £1,500,000 @ ex. 2/ (invested in sterling securities)	$15,000,000.00
	$15,000,000.00
By balance 31st December, 1908, £1,500,000 @ ex. 2/	$15,000,000.00
	$15,000,000.00

SILVER RESERVE FUND.

To balance	$15,250,000.00
	$15,250,000.00
By balance 31st December, 1908	$14,500,000.00
By transfers from Profit and Loss account	750,000.00
	$15,250,000.00

MINUTES OF THE ORDINARY HALF-YEARLY MEETING OF THE ABOVE-NAMED CORPORATION HELD AT THE CITY HALL, HONGKONG, AT NOON ON 21ST AUGUST, 1909.—The Eighty-eighth Ordinary Half-Yearly General Meeting of the Shareholders of the Hongkong & Shanghai Banking Corporation was held on the 21st instant, in the City Hall, when the eighty-eighth Report of the Court of Directors was submitted. Hon. Mr. W. J. Gresson, (Chairman), presided, and there were present:—Messrs. H. E. Tomkins, J. W. Bandow, E. G. Barrett, C. S. Gubbay, W. Helms, C. R. Lenzmann, E. Shellim, R. Shewan, H. A. Siebs, H. A. W. Slade (Directors), Mr. J. R. M. Smith (Chief Manager), Hon. Mr. Murray Stewart, Messrs. J. Barton, J. W. C. Bonnar, A. Bryer, F. G. Carroll, Chun Tong,

J. F. Cox-Edwards, R. H. Crofton, W. Dunbar, F. Paget Hett, Ho Fook, Ho Kom Tong, H. C. Joass, T. M. Knott, Lau Pun Chiu, J. M. E. Machado, Robt. Mitchell, H. N. Mody, H. M. H. Nemazee, A. H. Ough, W. H. Potts, W. H. Purcell, T. I Rose, A. Findlay Smith, H. Percy Smith, N. J. Stabb, W. Taylor, A. F. Warrack, W. H. Wickham, Wong Leung Him and others.

The Chief Manager read the notice convening the meeting.

The Chairman, having read the report already published, said:—Gentlemen,:—In laying before you the Statement of Accounts for the past half-year, I am unable to report any marked improvement in the demand for money for trade requirements; ease has been the prevailing tone of the money markets throughout, and it has been a matter of some difficulty to find profitable and suitable employment for all the funds at our disposal. Under these somewhat adverse banking conditions, your Directors feel assured that the result attained will be received with general satisfaction.

Your Directors recommended payment of the usual dividend of £2 per share, and the carrying forward to the current half year of an amount similar to that brought in from last account. In addition to this we propose placing $7½ lacs to the Silver Reserve Fund, and in thus adhering to old traditions, by continuing to strengthen our position, I am confident we may look for your support and approval. (Applause.)

It is not my intention to detain you on this occasion with a long statement. It is the usual custom for Banks only to hold meetings annually, and, though our Deed of Settlement calls for a meeting of Shareholders twice a year, I think the one held in August should be mainly confined to passing the accounts, leaving a review of trade and business generally to be made at our meeting in February, when fuller data are available. However, before turning to the Statement of Assets and Liabilities, you will perhaps allow me to refer briefly to the subject.

We are still waiting for the long expected turn of the tide. It cannot be said that trade in the Far East is yet in a flourishing condition, but there is promise of improvement in some directions, and I see no cause for taking a pessimistic view. On the contrary, news from India of the climatic conditions, upon which particularly in that country so much depends, is favorable; silk crops in both China and Japan are reported to be well up to, if not above, the average; and new life has been infused into the Straits Settlements by the success attending the cultivation of rubber, a product which bids fair to become a valuable and, I hope, a permanent addition to the exports of that region.

These factors must all have a beneficial effect on the import trade, which has been in a more or less depressed state for a long time past, and, needless to say, any improvement will be welcomed by all who are interested in Eastern commerce.

Coming now to the Statement of Accounts you will notice that our Note Circulation shows, as usual at this season, a considerable reduction from the higher total which always rules just before the Chinese New Year, while the amount of dollars deposited with the Government, as security, remains unaltered. Silver Deposits and Current Accounts are some $17 millions over the figures which appeared in the Balance Sheet last June, and nearly $5 millions higher than on 31st December, which is largely attributable to money being temporarily placed in the Bank, pending renewed activity in trade. Bills Payable are $15 lacs lower than in December, but a similar amount higher than in June. Fixed Deposits in gold are practically unchanged, but Gold Current Accounts shows a decrease of some £2,800,000, being about the amount mentioned at our last meeting as proceeds of loans temporarily held by our London Office. This is reflected on the other side of the account by an almost equal reduction in Bills Receivable, as compared with the total on 31st December. At that date the amount stood at a much higher figure than on any previous occasion, which was chiefly due to the large amount of homeward remittances carried by our London Office instead of rediscounted.

Cash, and Bullion in Hand and in Transit, together show an increase of $2½ millions; Bills Discounted, Loans, and Credits stand at $113 millions, as against $120 millions on 31st December and $109 millions on 30th June.

Indian Government Rupee Paper and Consols, Colonial and other Investments, are lower than last half year, but some $3,000,000 over the figures of a year ago.

The only other matter that I have to refer to is the opening of our own office in Canton. It has been apparent, for some time, that Railway and other business interests there, called for further local banking facilities, and you will see from the report that a Branch Office of the Bank was established on the 6th of last month. I have no doubt that, in time, it will prove a valuable addition to our list of Agencies.

If any shareholder wishes to ask any questions I shall be pleased to answer them.

There being no questions the Chairman, said: Before moving the adoption of the Report and Accounts, there is a subject to which I think you would like me to refer, though it is not one that affects the accounts now before us.

You have no doubt noticed the announcement that on behalf of the Bank your Directors have agreed to subscribe $50,000 to the proposed Hongkong University conditionally upon the full amount required for the Endowment Fund being forthcoming. Without desiring to enter into the controversy as to the desirability of a University at all, I would point out that the proposition has been most favorably received by the Chinese, including the highest officials not only in Canton but also in Peking, as is demonstrated by the way they have come forward with subscriptions, and if you will reflect on the position held by the Bank in China and its intimate financial relations with the Chinese Imperial Government for so many years, I am sure you will recognize that we have acted in the best interests of the Bank and will approve of our action accordingly. (Hear, hear, and applause.)

I now move that the Report and Accounts as presented be adopted.

Mr. W. Dunbar:—I have much pleasure in seconding the adoption of the Report and Accounts. The Balance Sheet reflects great credit on the management of the Bank, for during these dull times it can be no easy task and I am sure shareholders must feel highly pleased at the disposition made of profits, and will cordially approve of the donation to the proposed University. (Applause).

The motion was carried unanimously.

Mr. A. H. Ough proposed that the election of Mr. J. W. Bandow as a Director be confirmed.

Mr. W. H. Wickham seconded and the motion was agreed to.

The Chairman:—That is all the business, gentlemen; thank you for your attendance. Dividend Warrants will be ready on Monday.

THE HONGKONG AND WHAMPOA DOCK COMPANY, LTD.—The report of the Board of Directors of the Hongkong and Whampoa Dock Company, Limited, to the ordinary half-yearly meeting of shareholders, held at Queen's Buildings, Monday, August 23rd, is as follows:—

The Directors have now to submit to you their report, with a statement of accounts, for the half-year ended 30th June, 1909.

The net profit for the six months, after paying interest due and all charges, amounts to $76,609.93, to which has to be added the balance brought forward from last account $387,078.77—$463,688.70, less cost of re-organization to 30th June, 1909, $37,776.34—$425,912.36 and from this have to be deducted—Directors' fees (half the usual charge) $5,000, Auditors' fees $750—$5,750.00 leaving available for appropriation $420,162.36.

The directors recommend that a dividend for the half-year of 3 per cent. or $75,000 be paid to shareholders and the balance $345,162.36 be carried to the new account.

During the half-year under review, a contract was concluded with the Sze Yip S. S. Co., Ltd., for the construction of a twin screw river steamer for their Kongmoon trade, and this vessel will be ready for launching some time in September. Other new work in hand consists of a light draught steel river steamer, six steel lighters, six wooden lorchas and two motor boats, all for Manila.

The two launches mentioned in the last report as being built at the Cosmopolitan Dock for stock have been sold. The launches K. 7 and C. 3 have also been sold, and the new launch referred to in last report as under construction at Kowloon for harbor service has been launched and taken the place of the former.

A light draught river gunboat built by Messrs. Yarrow, Ltd., for the Portuguese Government for service in Macao was re-erected at Kowloon Dock and delivered to her owners.

The boiler shop extension at Kowloon Dock has been completed and the shop is now in full working order.

The new head office at Kowloon Dock, which is part of the scheme of re-organization, is on the point of completion and will be ready for occupation by arrival of the newly appointed Chief Manager.

The extension of No. 1 dock progresses slowly but the work has not prevented ships being accommodated whenever required.

HONGKONG, CANTON AND MACAO STEAMBOAT CO., LTD.—The report for half-year ended June 30th showed a credit of $171,170, to profit and loss out of which a dividend of $1.50 was paid for the half year, $50,000 written off for depreciation and transfer to insurance and special repairs account and the balance forward.

SHANGHAI GAS COMPANY.—This company paid a dividend of 6% for the half year on July 28th.

DEUTSCH-ASIATISCHE BANK.—The following is the report submitted for the year 1908:—The financial crisis emanating from America towards the end of 1907, as indicated in our last year's report, exercised an unfavorable influence on the commerce of the whole far east. The after-effect continued to be felt during this year, and a number of failures and suspensions of payment occurred. Happily, a general improvement in business conditions is now observable, except in the northern part of China and especially in Tientsin, where long and somewhat indiscriminate credits given by importers to Chinese merchants, ultimately resulted in the business being entirely paralysed, which state of affairs still continues.

The fact also that the Peking Government allowed certain provincial authorities to issue vast quantities of copper coinage, the nominal value of which far exceeded the intrinsic value, did much to render the crisis in China more acute. Furthermore, the larger and smaller Chinese native banks put into circulation a large amount of paper money for which there was no actual cash reserve, before the authorities saw fit to intervene.

The export business of China has somewhat improved, favored by the decline in silver, and to this only can be ascribed the slight increase in the receipts of the Imperial Chinese Maritime Customs, the figures of which are as follows:—

Haikuan-Taels 34,881,041 against Haikuan-Taels 33,861,345 in the year 1907.

After negotiations extending over a period of nine years, the preliminary agreement of May 1899, was succeeded on 13th January, 1908, by a final contract for a loan of five million pounds for Messrs. Geheimer Oberfinanzrat Hugo Hartung, Geheimer Kommerzienrat Hugo Oppenheim, Kommerzienrat Albrecht Otto and Franz Urbig retire from the board of directors and are again eligible for election.

Berlin, June 1909.

Balance-sheet as at 31st December 1908.

ASSETS.

		Shanghai Taels.
Cash		8,352,495.29
Bills receivable		13,499,930.79
Stocks		1,671,686.74
Debtors......	Tls. 18,684,019.33	
Credit balances with banks...	9,422,339.26	
		28,106,358.59
Bank premises, etc.	896,223.00	
Written off	47,811.15	
		848,411.85

Furniture and fittings	10.00
Bank-Note Guarantee account	1,025,641.03
Guarantee account	35,122.57
Tls	53,539,656.86

LIABILITIES.

	Shanghai Taels
Capital	7,500,000.00
Reserve	714,253.86
Special reserve fund	451,314.33
Provision for exchange differences, etc	375,942.98
Delcredere account	20,000.00
Pension-fund for the staff	282,703.50
Creditors	39,729,382.33
Bank-Note Guarantee account	1,025,641.03
Guarantee account	35,122.57
Acceptances	1,515,007.39
Unclaimed dividends	2,243.59
Bank notes in circulation	978,461.00
Profit and loss account	909,584.28
Tls	53,539,656.86

CICELY RUBBER ESTATES COMPANY, LTD.—This company has paid a final dividend of 32.5% on the ordinary shares making 50% for the year and 35% on the preference shares, making 55% for the year ended March 31, 1909.

PERAK RUBBER PLANTATIONS, LTD.—This company paid 10% for the year ended March 31st and carried forward £1,577.

HONGKONG ROPE MANUFACTURING COMPANY, LTD.—This company has paid an interim dividend of $1 a share for the six months ended June 30th.

THE MITSUI BANK.—The following is the result for the first half-year term:

	Yen
Net gains	2,220,190
Special reserve	500,000
Brought from previous accounts	1,052,331
Total	2,772,521

This was distributed as follows:—

To reserve	750,000
Special reserve	500,000
Dividend	420,000
Carried to next accounts	1,102,521

The total sum of reserve has now reached 13,000,000 yen.

HOTEL VAN WYK CO., LTD.—This company recently declared a dividend of 15% for the half year ended May 31st, 1909. This Singapore institution paid 80% on investment last year.

THE WEST POINT BUILDING CO., LTD.—An interim dividend of $2 per share for the half year ending June 30th was payable on Aug. 3rd.

THE SHANGHAI LAND INVESTMENT CO., LTD.—The dividend of 6% for the half year ending June 30th was payable on July 20th.

BUKIT RAJAH RUBBER CO., LTD.—This company paid a final dividend of 31% making 55% for the year ended March 31st.

THE FEDERATED (SELANGOR) RUBBER CO., LTD.—This company paid a final dividend of 25% making 35% for the year ended March 31st.

MESSRS. WHITEAWAY, LAIDLAW & CO.—The profit for the year was £71,969 out of which a dividend of 8% is recommended, £8,000 to the reserve and £5,318 forward.

TAMAGAWA ELECTRIC RAILWAY CO.—The following is the statement of accounts with recommendations for the half-year term:

	Yen.
Net profit	6,622
Brought forward	1,701
Total	8,243
To reserve	500
Dividend on preferential shares	6,750
Carried to next accounts	1,074

BANKING IN JAPAN*

The modern system of banking in Japan dates from the promulgation of the National Banks Regulations in November, 1872. Banks of every description have since then been created in quick succession; and now the financial organs of agriculture, industry, commerce, and various other enterprises have been brought into full working order, their present number being 2,371. These banks are divided by their nature into two classes, namely, those which have been established under the general banking laws, and making it their object to facilitate the general circulation of capital, act chiefly as organs of commerce, and those which, having been created under special banking laws, have special objects and functions as organs for the supply of capital to particular enterprises.

In 1872, the Government promulgated the National Banks Regulations, which were modelled on the National Bank Act of the United States of America, and provided for the conversion of the national bank notes into specie. An amendment was made in 1883 in the National Banks Regulations, by which the privilege of issuing notes was taken away from the national banks and granted exclusively to the newly-created Bank of Japan, and suitable measures for the redemption of the national bank notes were taken.

Meanwhile, private banks and bank-like companies which did not come within the purview of the National Banks Regulations had increased in number until in 1884 their total number reached 954, and there were no general provisions to control such banks and companies beyond their subjection to the control of the local authorities. To bring them under more efficient control, the Ordinary Banks Regulations and the Savings Banks Regulations were promulgated in 1890 and put in force three years later.

Ordinary banks are placed under the control of the Minister of Finance, whose license is required for the establishment of a new bank or the amalgamation of existing banks; he is also empowered to order at any time investigation into the business condition and property of a bank. Every bank must each half-year prepare and present to the said Minister a balance-sheet and other business reports and publish the balance-sheet in newspapers or by other means. Provisions also are made in the Regulations with regard to business hours and holidays.

Savings Banks, whose business is to take charge of the deposits made by the public at compound interest, must be joint-stock companies with a capital of not less than *yen* 30,000 (£3,073). Their directors are jointly under unlimited liability with respect to the obligations of the bank incurred during their term of office, and upon the lapse of full two years after their retirement therefrom they are released from such liability.

Savings Banks must, as guarantee for repayment of savings deposits, provide themselves with interest-bearing national or local loan bonds corresponding in value to at least one-fourth of the deposits received and place them in the Deposit Office. If, however, the said guarantee fund reach an amount equal to at least one-half of the capital, commercial bills and reliable companies' debentures and shares may be used. Any alteration in the articles of association of a savings bank must be previously approved by the Minister of Finance.

When a bank newly receives a sum of less than five *yen* as a fixed or current deposit, it may be regarded as a bank transacting the business of a savings bank.

In other respects the regulations for ordinary banks are also applicable to savings banks.

Side by side with these private banks, the national banks acted from the first as financial organs of general trade. When the terms of their respective charters expired, most of them continued business as private banks, and by February, 1899, national banks had ceased to exist, so that there is no longer any difference in economic functions and legal nature between the former national banks and other private banks, all of which are now subject to the general banking laws.

*The Financial and Economic Annual of Japan, 1909.

The above statements refer to ordinary banks, but there exist in addition such seven special banks as mentioned hereunder, each of which was created by special law.

The Bank of Japan.—(Nippon Ginko.)—The Bank of Japan, the central bank of the country, was established in 1882 as a joint-stock company. Its authorized capital, which was at first *yen* 10,000,000 (£1,024,275), was twice increased, and now stands at *yen* 30,000,000 (£3,072,826) fully paid up.

This Bank is privileged to issue bank-notes against gold and silver coins and bullion, and further to issue such notes on security of Government bonds and Treasury bills, and other bonds and commercial bills of a reliable nature, the maximum amount of the latter notes being *yen* 120,000,000 (£12,291,304) (the limit was until 1890 put at *yen* 70,000,000 (£7,169,927), and from that year to 1899 at *yen* 85,000,000 (£8,706,340)). In case of necessity, the Bank may be allowed to issue notes beyond the maximum above-mentioned which, however, are subject to a tax of at least five per cent. per annum.

The business carried on by the Bank is principally, (1) to discount or purchase Government bills, bills of exchange, and commercial bills; (2) to buy or sell gold and silver bullion; (3) to make loans on security of gold and silver coins and bullion; (4) to collect bills for banks, companies, and merchants, who are its regular customers; (5) to receive deposits and to accept the custody of articles of value, such as gold, silver, and other precious metals, and documents; and (6) to make advances in current accounts or loans for fixed periods on security of Government bonds, Treasury bills, and other bonds and shares guaranteed by the Government. The Bank is, in addition, entrusted with the management of the Treasury receipts and disbursements.

The Yokohama Specie Bank. (Yokohama Shokin Ginko).—The Yokohama Specie Bank was founded in 1880 with an authorized capital of *yen* 3,000,000 (£307,283) with the object of affording financial facilities in respect of the foreign trade of this country. It was at first supported in various ways by the Government; it was, for instance, entrusted with the management of several million *yen* of the Treasury Reserve Fund, and thus had an ample amount of capital placed at its disposal for discounting foreign bills of exchange. In 1889, such support was withdrawn, and in lieu thereof, the Bank of Japan was ordered to rediscount foreign bills of exchange on demand of the Specie Bank to an amount not exceeding *yen* 20,000,000 (£2,048,551) at the rate of two per cent. per annum. In 1887, when the special ordinance respecting the Specie Bank (Imperial Ordinance No. 29) was promulgated, the capital of the Bank was raised to *yen* 6,000,000 (£614,565.) The consequent extension of its business necessitated in the same year a further increase of its capital to *yen* 12,000,000 (£1,229,130); and in 1899, the capital was again doubled, and this sum of *yen* 24,000,000 (£2,458,261) is now fully paid up.

The business carried on by the Bank consists of (1) foreign exchange; (2) inland exchange; (3) loans; (4) deposits of money and custody of articles of value; (5) discount and collection of bills of exchange, promissory notes, and other securities; and (6) exchange of coins. The Bank may also buy or sell public bonds, gold and silver bullion, and foreign coins, if so required by the condition of its business. It may also be entrusted with matters relating to foreign loans and with the management of public money for international account. Besides, the Bank is authorized to issue bank-notes convertible into silver in Kwantung Province and China under the control of the Ministers of State for Foreign Affairs and Finance.

The Hypothec Bank of Japan. (Nippon Kwangyo Ginko).—The Hypothec Bank of Japan was created for the purpose of making long-term loans at a low rate of interest on mortgages of immovable property with a view to the improvement and development of agriculture and industry, and is the central financial organ for agricultural and industrial enterprises on a large scale in our country.

(To be continued)

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, LIGHT, POWER, TELEGRAPH TELEPHONE, ETC.

WIRELESS FOR TIBET.—The proposal to instal a system of wireless to connect Szchuen and Tibet has been approved by the Peking authorities.

CHINESE WIRELESS EXTENSIONS.—The project to instal wireless in Mongolia, Chinese Turkestan and Kansu, has received the sanction of the Ministry of War.

JAPANESE WIRELESS EXTENSION.—Provision has been made to establish three additional wireless stations along the coast of Japan during the current fiscal year.

DAIREN ELECTRIC LIGHT.—The month of June was marked by the filing of over 4,000 applications for lights, and has been keeping the company busy making installations.

YOKOHAMA ELECTRIC EXTENSION.—The construction of the line between Minami Yoshida-Machi and the Kamakura station, a distance of 10 miles, is expected to be pushed at once.

MANCHURIA TELEGRAPH EXTENSION.—The Mukden-Hsinching section of the proposed Mukden-Changpaichon line, now under construction, was opened for service the latter part of June.

PEKING TELEPHONE CONTRACT.—The contract for the supply of telephones and telephone supplies for the extension of this system has been awarded an American company at a cost of about Tls. 280,000.

ELECTRIC ELEVATOR FOR MUNICIPAL GODOWN.—The municipal authorities at Shanghai have authorized the installation of an electric elevator in the new godown the estimated cost of which is placed at £1,300.

DAIREN GAS PLANT.—The plant recently arrived is being installed by the South Manchuria Railway under the direction of German engineers and it is expected that it will be operating by the end of April, 1910.

NAGOYA TRAMWAY.—A syndicate has been formed with a capital of yen 150,000 for the purpose of installing a line about one and one-half miles long, connecting the harbor works and the Atsuta terminal of the Nagoya electric railway.

DAIREN ELECTRIC TRAMWAY.—It is expected that the main section of this system now under construction will be ready for operation by November. This includes the main routes connecting the wharves, Fushimi Park and the market.

DAIREN-CHEFOO CABLE RATES.—The recent tariff names a rate of 16 sen per European word from any telegraph office in Manchuria to the Chinese Telegraph office, Chefoo via Dairen, and a rate of 10 sen per seven kana syllables from those points to the Japanese Telegraph office, Chefoo.

JAPANESE TELEPHONE EXTENSION.—Telephone service has been opened between Shimonoseki and Himeji, Kyoto and Gojo, Maizuru and Mita, Sakai and Nishidaiji, Akashi and Tatsuno, Himeji and Arima, Tamashima and Fukuyama, Toyooka and Hojo, Nioji Chayamach and Takamatsu.

JAPAN-KOREAN GAS AND ELECTRIC COMPANY.—With the purchase of the Korean Electric Company for which yen 1,750,000 was paid, the Japanese-Korean Gas Co. changed its name to the Japanese-Korean Gas and Electric Company. The purchase price is to be paid within five years. The new company will assume charge of the Seoul tramway and plant about September.

JAPANESE BUREAU OF ELECTRICITY.—The increase yearly in the use of electric current for power and lighting has impressed the Japanese Government with the necessity of imperial supervision with the result that a bureau has been established and rules and regulations are being drafted for the consideration of the Diet. According to the report of Tokyo officials, the amount of electric current in use at the present time is represented by 170,000 kilowatts and the installation of generating plants has been authorized representing a capacity of 110,000 kilowatts. The bureau is especially interested in the manufacture of nitrogen fertilizer by utilising water power.

SHANGHAI PUBLIC LIGHTING.—The following charges have been authorized by the Municipality: Lighting—Alternative of flat rate of Tls. 0.13 per unit with discounts of 5% on over 1000 units; 7.5% over 1500 units; 10% on over 2000; an additional discount of 5% on every thousand units consumed to a maximum of 30% on an amount over 6,000 units; or Tls. 0.19 per unit for the first hour and a quarter supply on the average maximum demand per diem for the month with Tls. 0.07 per unit for all additional supply. Power—A maximum charge of Tls. 0.06 per unit for any amount under 66 units per month of the consumer's maximum load and a sliding scale to any amount above 130 units at Tls. 0.0475. Rates have also been provided for power for lifts and hoists and heating and cooking not included in the above.

COACHES FOR AUSTRALIAN TRAMWAYS.—*Hardware and Machinery* says that the tender of Noyes Bros. (Melbourne) Prop. Ltd. has been accepted for the manufacture in South Australia of 50 car bodies for the Adelaide electric tramways at a total cost of £36,673 13s. When their tender was submitted the company intended to import the cars in parts from the J. G. Brill Co., of Philadelphia, U.S.A., but the members of the Tramway Trust were anxious to have the work done locally, and the tenderers were able to meet this wish. They made arrangements with a South Australian firm (Pengelley & Co., of Edwardstown) to build the cars under their supervision, the cost to the Trust to be that fixed by the tender. Certain fittings, which must be imported in any case, will be obtained from the Brill Co., and in order to fulfil the stipulation regarding delivery, roughly milled timber for 20 car bodies will also be brought from abroad.

PUBLIC WORKS, DOCKS, WHARVES, ETC.

RAILWAY DRAWBRIDGE OVER THE YALU.—It is the intention of the railway authorities to complete the construction of six pier foundations on the Korean side of the river this year. The entire cost of the bridge as estimated is yen 2,500,000.

BANGKOK WATERWORKS.—His Majesty, King of Siam, has authorised the Sanitary Department of the capital city to expend the sum of Ticals 3,000,000 in providing a suitable water supply for Bangkok. The installation will include a reservoir in Klong Chieng Rak in the province of Muang Prathumthani; canals carrying the water to the city; the installation of pumping stations and filters; and the distribution of the water in tanks throughout the city from which it will be served throughout the city by suitable pipe connections. The plans and specifications are under way and tenders will soon be advertised for by the department.

PERAK PUBLIC WORKS.—The total expenditure for public works in the state of Perak for the year 1908 amounted to $2,291,000.

NEW BRIDGE AT ILOILO.—The new reinforced concrete bridge built by the Insular Government on the driveway between Iloilo and Jaro was formally opened to the public last month. It is known as the Forbes' Bridge called after the acting governor general. The contractors were Messrs. W. H. Lambert & Co. of Iloilo. There were 2,877 cubic yards of concrete and over 57 tons of steel utilized in the construction. The dimensions are:

Base of piers,—15×41; piers at springing line,—6×32; clear span of each arch,—67.5 feet; overall length of bridge,—416 feet; overall width of bridge, 34 feet; width of roadway,—22 feet; width of each side-walk,—5 feet.

CORREGIDOR FORTIFICATIONS.—Some idea of the stupendous work undertaken by the American government may be gathered from the fact that over $10,000,000 gold has already been expended on this island and over $40,000,000 additional has been provided to make the entrance to Manila Bay impregnable.

PORT ARTHUR PUBLIC WORKS.—The Japanese Government is expending large sums of money in clearing this port of sunken ships and dredging to remove the accumulation of silt.

OITA HARBOR IMPROVEMENTS.—The sum of yen 1,500,000 is to be expended in building a breakwater and deepening the harbor so as to accommodate vessels of 8,000 tons measurement. Warehouses, cranes and tramways will be built. The work is to be completed within three years.

YOKOHAMA HARBOR WORKS.—The new harbor when completed will cover an area of 56 acres and will have a depth of from 20 to 32 feet. The area is to be enclosed by quay walls about 7000 feet in all of which about 6000 feet will be available for accommodating vessels. The entire cost will exceed yen 8,000,000 and include the construction of a number of warehouses, loading and unloading facilities, cranes and about 11 miles of railway to connect with the city lines.

CHING-WANG-PAO HARBOR IMPROVEMENTS.—This important port which is one of the largest shipping points in North China is to be deepened from 23 to 25 feet. It is the winter port of Tientsin and the outlet for the Kaiping mines.

KOREAN ROAD BUILDING.—The Resident General has prepared a program under which yen 1,000,000 will be expended during the next three years in constructing roads connecting the principal centers of the country. The appropriation for this year amounts to yen 200,000.

NEGRI SEMBILAN PUBLIC WORKS.—During the year 1908, the public works department spent over $1,000,000 leaving a balance available of about $40,000.

THE HANKOW WATER WORKS.—The company began operations last month and previous to turning on the supply, the director of the company announced that water would be supplied free to the inhabitants for a period of one month.

KRIAN IRRIGATION WORKS.—The report of the state engineer states that during the year 1908 there were 55,487 acres of padi land planted and fully irrigated. The crop standing at the end of the year, estimated from many observations along every distributary, works out at 23¼ million gantangs (2,906,250 bushels) and the value of the crop, at 7 cents per gantang, is $1,627,000 (£190,000).

The value as worked out in the above is exactly the entire cost of the Krian irrigation scheme and due to the system of irrigation this crop is the best ever realized in the history of that section. Besides the irrigation this system supplies filtered water to all the estates on, the Kauran River.

ILOILO HARBOR WORKS.—The river at Iloilo is being dredged to a depth of 24 feet and widened to 500 feet. A concrete wharf is being built which when completed will be 1,200 feet long and have a depth of 15 feet alongside.

CEBU HARBOR WORKS.—The harbor wall at Cebu is being extended from 3,000 feet to 5,000 feet. The harbor has now sufficient depth to accommodate vessels drawing from 18 feet to 28 feet.

NORTH SADDLE ISLAND HEALTH RESORT.—A scheme is being perfected to turn the island into a watering place for Shanghai residents. The owner of the island has offered to turn over the site for a hotel and every inducement is being made to interest the residents to build bungalows there for occupancy during the heated term. The distance is about 84 miles from Shanghai, and is on that account available for week ends and for families during the summer. A service was inaugurated July 17th.

TAMSUI HARBOR WORKS.—A dredger has been secured by the Formosan government at a cost of yen 50,000 to be used in deepening the harbor at this point to a depth of 18 feet.

HUNCHUN HARBOR IMPROVEMENTS.—The Viceroy of Manchuria has decided to expend Tls. 600,000 in improving the harbor facilities for this important Kirin port.

TAKOW HARBOR WORKS.—The work of improving this harbor is progressing rapidly and when completed there will be about 250,000 square yards dredged to a depth of 24 feet and the balance from 10 to 15 feet.

FORMOSAN LIGHTHOUSE.—The new lighthouse situated on Azincourt Island, 40 miles from Keelung, was put in commission early this month. Its light represents a maximum of 500,000 candle power and may be seen for about 30 miles from its elevation on a high promontory.

LIAO RIVER CONSERVANCY.—Two proposals are offered by the consulting engineers in their report on the conserving the Liao River to better navigation. One plan is to build a dam at the mouth of a tributary stream at Shuangtaitzu about forty-five miles above Newchang, thus turning the water from this source from flowing into the sea, and into the Liao at a cost of about Tls. 150,000. The alternative is to cut a canal straight from Tungchiangtzu to Hsaaspeiho which would lessen the distance by 11 days and in addition to build a strong embankment near Newchwang to protect the city. The cost of the latter proposal would not exceed Tls. 1,000,000 and is considered the most desirable.

F. M. S. PUBLIC WORKS.—The total expenditure for the year amounted to $6,961,238, Straits Currency, of which $1,997,886 was for new works and buildings and $2,800,130 for roads and bridges.

SINGAPORE DOCKS AND RECLAMATION.—Work is under way on the new graving dock for the Tanjong Pagar Dock Board which is to cost when completed £400,000. It will be one of the largest in the world, having a length of 128 feet, a width of 128 between copings and a depth of over 34 feet at Spring tides. The contractors in charge of the work are Messrs. Topham, Jones & Railton. The reclamation work covering an area of 80 acres, the new 6,000 foot quay and the 24 acre basin for the Board is expected completed by 1918 while the graving dock will be ready for use in 1912. The entire cost is estimated at £3,000,000.

GENSAN HARBOR WORKS.—The authorities have decided to build a jetty at this point 300 yards long and 24 yards in width at a cost of yen 300,000 and to be completed by the end of the year.

PHILIPPINE PUBLIC WORKS.—The loan of $1,500,000 Gold issued to cover probable deficiency in revenue, as a result of the Payne Bill, is to be used in covering appropriations for the following works:

In part for the new general hospital building for which ₱780,000 had already been appropriated; ₱100,000 for new constabulary barracks, ₱350,000 for the new bodegas for the bureau of supply; ₱250,000 for the new Philippine medical school building; ₱200,000 to reimburse the city of Manila for the reconstruction of the Pasig river wall; ₱100,000 for the purpose of preparing for the construction of a public building for the use of the chief executive, the Philippine legislature, and the Supreme Court; ₱500,000 for irrigation work throughout the islands; ₱150,000 for artesian wells; ₱85,000 for a quarantine station for animals in Manila; ₱18,000 for a forage plant; ₱200,000 for the new Cebu custom house and other smaller appropriations.

SHIPBUILDING, GENERAL MARINE AND FISHERIES

NEW OPIUM HULK LAUNCHED.—The Nanking, built to the order of Messrs. E. D. Sassoon & Co. by the Shanghai Dock and Engineering Company, Ltd., was launched from the Pootung Works last month. The hull is of Siemens Martin Mild Steel 165 ft. long by 35 feet broad and 11 feet moulded depth. The deck houses are of wood and consist, on the Main Deck, of a cargo room 135 feet long by 27 feet wide.

NEW ROUTE TO EUROPE.—It is announced that a combine of steamship companies has been organized to transport cargo from Pacific ports to Europe via the isthmus of Tehuantepec, Mexico. The Kosmos, American Hawaiian lines, the Canadian-Mexican Company, the Hamburg American, the Royal Mail Packet line, the Leyland line, and the French Trans-Atlantic companies, are said to be interested.

NINGPO-SHAOSHING S. N. CO.—The initial trip of the s. s. Ningshao on July 10 inaugurated the new line between Shanghai and Ningpo. This vessel is of 1,300 tons registered and is fitted for passenger service.

STRAITS SETTLEMENTS' SHIPPING.—The number and tonnage of all vessels, entered and cleared, at the four ports of the Colony during 1908, were 54,554 and 23,994,336, respectively. Of the foregoing 18,495 vessels of 21,750,245 tons are classed as "Merchant-vessels" (*i.e.*, all steamers above 50 tons net register, and a few sailing-vessels of the same tonnage from distant ports); 35,629 vessels with a tonnage of 1,455,436 are entered as Native Craft and Steamers and 50 tons, whilst 430 vessels of 788,655 tons are warships, yachts, transports, telegraph steamers and dredgers.

AMUR SHIPPING FLEET.—A combination of shipowners has been formed at Blagoveshensk and has purchased all the wharves, godowns, and barges of the Amur Steamship Company, and now owns a fleet of 18 steamers and 31 barges, and they expect to control the navigation of the central and lower Amur.

NIPPON YUSEN KAISHA.—This company has opened a new line between Nagasaki and Shanghai. The Niigata Maru will make the trip every two weeks.

MITSU BISHI.—The new steamer Umegaka Maru, built by the Mitsui Bishi Shipbuilding Yards for the volunteer fleet, was taken to Yokohama last month.

AMERICAN-PHILIPPINES LINE.—Cabled advices received at Manila are to the effect that a company is being organized to inaugurate a line of steamers between the islands and the mainland in order to carry the increased trade expected to follow the recent reciprocal legislation.

MINES, MINERALS AND THE METAL TRADE

F. M. S. TIN EXPORTS.—The total export of tin from Perak, Selangor and Negri Sembilan for the first six months of the year amounted in all to piculs 365,026.

MINING PRODUCTS IN JAPAN.—The total trade in mineral products in Japan for the year ended March 31st amounted in value to yen 110,359,899 of which the imports exceeded the exports by yen 24,474,787. The aggregate capital represented by mining companies is yen 175,809,603 and the number of companies operating, 205.

POTTERY AT FUSHUN.—The character of the clay in the vicinity of the coal mines is being investigated by the Japanese authorities with a view of reviving the industry which is said to have flourished years ago.

GREEN ISLAND CEMENT-COMPANY.—This enterprising company has recently made an addition to its staff in the person of Mr. W. W. Wheston, a well known expert who has been engaged as consulting specialist and is available for consultation on concrete work.

FUSHUN COAL.—About 12,000 tons of coal has been exported to Korea during the last three months and shipments continue to Shanghai and Tientsin.

CHIKUHO COAL FOR HANGYANG.—The Mitsui Bussan Kaisha is supplying 80,000 tons of coal yearly to the Hangyang Iron Works.

PARACALE-EXTENSION MINING COMPANY.—A company has been organized with a capital of ₱450,000 for the purpose of operating two dredges in the Paracale district, one of the richest placer fields in the Philippines. New Zealand and local capital are interested.

SZECHUAN COLLIERY COMPANY WINDS UP.—The Shiangpei Colliery and Iron Mining Company organized by Mr. Archibald Little has gone into liquidation.

KUHO GOLD MINE.—Arrangements have been made whereby Chihli and Manchurian provinces will finance a company to develop this most important deposit in Heilungkiang.

SAN MAURICIO MINING PLANT.—The installation of the 20 stamp mill by this company in Paracale is progressing rapidly, and it is believed that it will be ready for operation by October of this year. Five engines will be installed and the boiler capacity will be 250 h. p. The equipment will make for convenience and expedition as well as economy and quite a village is being built at the mine to properly house the staff and native employees.

TUMBAGA MINING PROPERTY.—This company has made great progress in the work of development, 130 feet being driven on the first level about 70 feet below the surface. A small Huntington mill is now in operation and several fine specimens of ore indicate that the property is one of the most productive in Paracale.

JAPANESE GOVERNMENT STEEL FOUNDRY.—The output for the year ended March 31st is roughly estimated at about 100,000 tons, of which the more important items are 20,000 tons of steel plate, 25,000 tons of rails, 7,000 tons of steel bars, 3,600 tons of angular bars, 5,000 tons each of flat and pig steels, and 2,500 tons of nickel plated steel plates. Of the total production, over 80,000 tons have been already sold, of which 55,000 tons have been bought by the Government and the rest by private firms.

SHANGTUNG COAL FIELDS.—Correspondence from Ichowfu indicate that there is some activity in coal mining development about ten miles from that city where the government is installing machinery. Iron is also reported in that vicinity.

KUANGSI SILVER DEPOSITS.—The deposit of silver in Kuenishien is reported to run fifteen ounces of pure silver to a pikul of ore and over thirty lodes have been located in that vicinity. A syndicate has been formed for the purpose of development and work is now under way making preparation for the installation of modern machinery.

FINANCIAL AND MISCELLANEOUS

CHINESE COMMERCIAL BANK.—A company has been organized with a capital of Tls. 10,000,000 by the Chinese of the South Pacific Islands for the purpose of establishing a bank with branches throughout the Orient. The Chinese of the different open ports in China have been invited to participate.

CHINA'S INCOME.—The Ministry of Finance has announced that the estimated income from all sources should exceed Tls. 60,000,000, annually.

F. M. S. RUBBER EXPORT.—The amount exported for the half year ended June 30th amounted to 2,463,240 pounds compared with 1,382,158 for the corresponding term of 1908.

LABUAN FINANCES AND TRADE.—The report of the resident places the revenue for the year 1908 at $72,313 and the total expenditure for all purposes of $122,950. The returns of trade show a decrease of 14% compared with the previous term.

DUTCH EAST BORNEO TRADE.—The export of oil from this colony for 1908 is valued at £372,865 and is practically the bulk of export trade of the country. The imports amounted to the value of £323,165, approximately.

YOKOHAMA LOAN FLOATED.—This loan for £716,500 bearing 5% has been issued at 98 in London. The proceeds are to be utilized in extending the water works.

PERAK FINANCES.—The revenue from all sources for 1908 amounted to $13,462,714 and the expenditure $12,629,199.

ORIENTAL EXPLOITATION COMPANY.—This company, which has for its purpose the supplying of materials for the construction of railways, public works, etc., in China, has been organized with a capital of yen 1,000,000.

YOKOHAMA DOCK COMPANY LOAN.—This company is making arrangements to float a loan of yen 1,000,000 to be used in extending its operations.

JAPAN'S FOREIGN TRADE FOR HALF-YEAR.—Japan's foreign trade for the first half of this year amounted to Y.398,604,437—Y.185,053,647 exports and Y.213,550,790 imports—showing an excess of imports over exports by Y.28,497,143. In comparison with the corresponding period of last year the total amount of trade for the past half year indicates a decrease of Y.27,411,585.

PHILIPPINE LABOR FOR HAWAII.—The Hawaii Planters' Association has succeeded in contracting for 700 laborers from the Visayan Islands.

PHILIPPINE PERMANENT IMPROVEMENT BONDS.—Bids were recently opened at Washington on the issue of $1,500,000 of 4% bonds. No award has been made.

*LONDON, ENGLAND, METAL MARKET

July 1909.

The following are to night's (July 16) prices ¶ of metals:—

COPPER	£	s.	d.		£	s.	d.
*Tough cake and Ingot	61	0	0	..	62	0	0
*Best Selected	61	0	0	..	62	0	0
*Electrolytic	61	10	0	..	62	0	0
*Sheets and sheathing	69	0	0	..	—		
*Flat bottoms	72	0	0	..	—		
STANDARD †Cash	58	6	3	..	—		
STANDARD †Three Months	59	0	0	..	—		
*Copper tubes, seamless per lb.	0	0	8⅞	..	—		
*Lake	65	0	0	..	66	0	0

* Less 3½ per cent. † Net.

ALLOYS.

BRASS: Wire	0	0	6⅝	..	—		
,, Tubes (solid drawn)	0	0	6¾	..	—		
,, Sheets	0	0	6⅞	..	—		

TIN.

English ingots, f. o. b.	130	10	0	..	131	10	0
,, bars	131	10	0	..	132	10	0
,, refined	132	10	0	..	133	10	0
Straits... Cash	131	15	0	..	—		
Straits... Three months	133	2	6	..	—		
Australian spot	—			..	—		
Banka (in Holland) Cash	133	2	6	..	—		
Banka (in Holland) Three months	133	7	6	..	—		

LEAD.

Spanish or soft foreign	12	15	0	..	12	16	3
English pig, common	13	0	0	..	13	2	6
,, L. B.	13	7	6	..	—		
,, sheet and bar lead	13	17	6	..	—		
,, pipe	14	7	6	..	—		
,, red	15	15	0	..	—		
,, white	17	10	0	..	—		
,, patent shot	15	17	6	..	—		

SPELTER.

Silesian ordinary brands	21	18	9	..	22	0	0
,, special brands	22	5	0	..	22	10	0
English Swansea	22	10	0	..	23	0	0
Sheet zinc	24	10	0	..	—		

ANTIMONY.

Antimony	29	0	0	..	30	0	0
,, Crude	13	10	0	..	14	10	0
,, Ore (basis 50%)	7	10	0	..	8	10	0

QUICKSILVER.

Flasks, 75 lbs. warrants	8	5	0	..	—		

MANGANESE.

Ore, c.i.f., U. K. ports.	Per unit.				Per unit.*
1st quality, 50 per cent. and upwards	0	0	9	..	—
2nd quality, 47 per cent. to 50 per cent	0	0	8	..	—
3rd quality, 40 per cent. to 47 per cent	0	0	7	..	—

* Unit corresponds to 1 per cent.

ALUMINIUM.	Per ton.				Per ton.		
98-99 per cent	58	0	0	..	60	0	0

NICKEL.	Per ton.				Per ton.		
98-99 per cent. guaranteed	170	0	0	..	175	0	0

PLATINUM.

Per oz. Troy, 91s. 6d.; nominal and subject to negotiation.

Mining Journal.

HEMP STATISTICS, 30th JULY, 1909.

(Courtesy of C. S. NICHOLSON, *Secretary, Manila Chamber of Commerce.)*

EXPORT OF HEMP, JULY, 1909.

Date		Vessel	London	L'pool	Atlantic U.S.	Pacific East & California	Continent.	Australia	Other Pts.	Total Bales
1909			139,686	69,581	261,178	50,971	35,131	8,803	18,462	583,812
July	1	Loongsang	50							50
"	"	Socotra	50	7,421			49			7,520
"	3	Rubi	2,064				1,050		450	3,564
"	6	Taming	4,170							4,170
"	10	Gymeric			21,275					21,275
"	"	Titan				1,850				1,850
"	"	Yuensang	350				552		474	1,376
"	11	Kumeric				8,190			2	8,192
"	"	Zafiro							2	2
"	12	Nikko Maru						990		990
"	"	C. Lopez y Lopez		2,150			219			2,369
"	"	Tean					100			100
"	15	Seminole				3,753				3,753
"	16	Rubi					100			100
"	17	Seneca			4,250					4,250
"	18	Taming	1,000							1,000
"	20	Prinz Sigismund						832		832
"	21	Taming......Cebu	2,965	1,698						4,663
"	22	Taiyuan						40		40
"	23	Yuensang		1,910			222		265	2,397
"	23	Foochow.....Cebu	800							800
"	25	Minnesota				10,495				10,495
"	"	Zafiro	1,000						550	1,550
"	30	Tean	750				375		100	1,225
"	"	Niko Maru							210	210
"	31	Loongsang					260		150	410
"	"	Indravelli....Cebu			20,230					20,230
			152,885	82,760	306,933	75,259	38,058	10,665	21,024	687,584

FAR EASTERN STOCKS AND QUOTATIONS

Courtesy of Messrs. Kadoorie & Co., Hongkong, July, 1909.

STOCK.	WHEN ESTABLISHED	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	AT WORKING ACCOUNT	DATE	LAST DIVIDEND.	Approximate Yield per cent per annum at Present Quotation	CLOSING QUOTATIONS. (Aug. 13, 1909)
BANKS.											
Hongkong & Shanghai Banking Corporation	1865	$15,000,000	120,000	$125	$125	g £1,500,000 s $14,500,000 i $250,000	$2,006,234	31-12-08	Final of £2-and bonus of 5/- @ ex 1/8 ¾ = $26.024, making in all $47.966 for 1908..	4¾	1030 sa. & s. £95/5
National Bank of China, Ld.	1891	£699,475	10) 99,925	£7	£6	c £4,099 $150,000	$10,223	31-12-07	$2 (London 3/6) for 1903	....	$65 buyers
MARINE INSURANCES.											
Canton Insurance Office, Ld.	1881	$2,500,000	10,000	$250	$50	$1,560,000 j $232,757 u $411,990	Nil.	31-12-07	$14 for 1907	7½	$195 sellers
North China Insurance Co., Ld.	1863	£150,000	10,000	£15	£5	g £125,000 s Tls. 150,000 u Tls. 303,747 f Tls. 118,277	Tls. 160,512	30-6-08	Interim of 7/6 for % 1907	5½	Tls. 120 sa. & b.
Union Ins. Society of Canton, Ld.	1867	$3,100,000	12,400	$250	£$100	s $3,000,000 g £90,000 f $192,248 j £105,249 u $682,609	$2,464,901	31-12-08	Final of $17 making $47 for 1907, and interim of $30 for account 1908	5¾	$840 sellers
Yangtsze Ins. Association, Ld.	1862	$1,200,000	12,000	$100	$60	$1,000,000 j $294,405 f $199,234	$707,637	31-12-08	$12 and bonus $3 for 1907	7½	$235
FIRE INSURANCES.											
China Fire Ins. Co., Ld.	1870	$2 000,000	20,000	$100	$20	$1,000,000 x $438,668 f $13,802	$375,314	31-12-08	$6 and bonus $2 for 1907	7½	$115 sales
Hongkong Fire Ins. Co., Ld.	1868	$2,000,000	8,000	$250	$50	$1,438,173	$368,711	31-12-08	$27 for 1907	8	$345 buyers
SHIPPING.											
China & Manila Steamship Co., Ld.	1882	$750,000	1) 30,000	$25	$25		Dr. $21,538	31-12-08	$1 for 1906	....	$10 sellers
Douglas Steamship Co., Ld.	1883	$1,000,000	20,000	$50	$50	$264,638 s $99,067	Nil.	30-6-08	$2½ for year ending 30-6-08	7	$36
Hongkong, Canton & Macao Steamboat Co., Ld.	1865	$1,200,000	80,000	$15	$15	e $250,000 d. i. $617,500 f $119,267 $ 22,645	$21,170	30-6-09	Interim of $1½ for a/c 1909	7¾	$31½ sa. ex div.
Indo-China Steam Navigation Co., Ld. (Preferred) Do. Do. (Deferred)	1882	m £600,000	2) 60,000 2) 60,000	£5	£5	i £418,891	£15,162	31-12-08	6/- for 1907 on pref. shares only at ex. 1/9 11/16, $3.154	....	$60 sellers
"Shell" Transport & Trading Co., Ld.	1898	£ 2,000,000	2,000,000	£1	£1	£720,000 i £100,000	£192,994	31-12-08	Final of 2/- for 1908 & int. of 1/- for a/c 1909	....	74/- buyers
"Star" Ferry Co., Ld.	1898 1900	$200,000	10,000 10,000	$10 $10	$10 $5	$65,000 i $48,980	$31,21	30-4-09	$1.00 50 cts. for year ended 30-4-09	4 3½	$26 sa. & b. $15½ sales
REFINERIES.											
China Sugar Refining Co., Ld.	1878	$2,000,000	20,000	$100	$100	e $350,000 r $56,848	Dr. $5858	31-12-08	$5 for year ending 31-12-08	3½	$137½ buyers
Luzon Sugar Refining Co., Ld.	1882	$700,000	7,000	$100	$100	none	Dr. $135,893	31-12-08	$3 for 1897	...	$20 buyers
Perak Sugar Cultivation Co., Ld.	—	Tls. 350,000	7,000	Tls. 50	Tls. 50	Tls. 100,000	Tls. 9,173	31-8-07	Tls. 3½ for year ending 31-8-08	....	Tls. 295 sellers
MINING.											
Chinese Engineering & Mining Co., Ld.	1901	£1,000,000	1,000,000	£1	£1	d £175,000 h £12,289	£11,556	28-2-07	Int. of 1/6 for year ending 29-2-09 (Coupon No. 12)	7	Tls. 18½ sales
Raub Australian Gold Mining Co., Ld	1892	£200,000	150,000 50,000	£1 £1	18-10 £1	£4,873	Dr. £2,191	31-3-08	No. 12 of 1/-=48 cents	....	$8 sellers
DOCKS, WHARVES AND GODOWNS.											
Fenwick (Geo.), & Co., Ld.	1889	$450,000	s 18,000	$25	$25	$42,986	Dr $7,421	31-12-08	$1¾ for year ending 31-12-06	....	$12
Hongkong & Kowloon Wharf & Godown Co., Ld.	1886	$3,000,000	60,000	$50	$50	$550,000 t $26,806 s $40,000	$30,102	31-12-08	Final of $1½ making $3½ for 1907	...	$60 sales
Hongkong & Whampoa Dock Co., Ld.	1866	$2,500,000	50,000	$50	$50	i $97,199 v $200,000	$387,078	31-12-08	Final of $4 making $8 for 1908	12½	$62 sellers
Shanghai Dock & Engin'g Co., Ld.	1906	Tls. 5,570,000	13) 55,700	Tls. 100	Tls. 100	Tls. 1,000,000	Tls. 6,261	30-4-09	Final of Tls. 2½ for year ending 30-4-1909	6¼	Tls. 79½ sales
Shanghai & Hongkew Wharf Co., Ld.	1902	Tls. 3,600,000	36,000	Tls. 100	Tls. 100	b Tls. 697,257 r Tls. 50,000 e Tls. 125,000	Tls. 6,261	31-12-08	Final of Tls. 6 making Tls. 10 for 1908	6½	Tls. 146 sales
LANDS, HOTELS AND BUILDINGS.											
Anglo-French Land Investment Co., Ld.	1906	Tls. 2,500,000	3) 25,000	Tls. 100	Tls. 100	Tls. 35,000	Tls. 4,314	29-2-09	Tls. 6 for year ending 29-2-09	5¾	Tls. 105 sales
Central Stores, Ld.	—	$751,845	16) 50,123	$15	$15	n. $1,000	$24,641	31-12-08	$1.20 on old & 60 cts. on first new issue	....	$17 buyers
Hongkong Hotel Co., Ld.	1866	$600,000 $400,000	12,000 8,000	$50 $50	$50 $25	$648,975 r $13,912	$295	31-12-08	Final of $3 making $6 1908	...	$74 b. ex n i $44 b. new n i
Hongkong Land Investment & Agency Co., Ld.	1889	$5,000,000	50,000	$100	$100	e $250,000	$26,475	31-12-08	Interim of Tls. 3½ for a/c 1909	6½	$102½ buyers
Humphreys' Estate & Finance Co., Ld.	1887	$1,500,000	150,000	$10	$10	i $222,172 20) $43,261	$5,486	31-12-08	60 cents for 1908	6¼	$9¾ sales
Kowloon Land & Bldg. Co., Ld.	1889	$300,000	6,000	$50	$30	none	$278	31-12-08	$1½ for 1908	5	$30
Shanghai Land Investment Co., Ld.	1888	Tls. 3,900,000	78,000	Tls. 50	Tls. 50	Tls. 1,523,045 e Tls. 300,000	Tls. 142,404	31-12-08	Interim of Tls. 3 for 1909	6¾	Tls. 118 sellers
West Point Bldg. Co., Ld.	1889	$625,000	12,500	$50	$50	none	$1,968	31-10-08	Interim of $2 for a/c 1909	8¾	$44
COTTON MILLS.											
Ewo Cotton Spinning & Weaving Co., Ld.	1895	Tls. 1,000,000	5) 20,000	Tls. 50	Tls. 50	Tls. 150,000 Tls. 45,939	Tls. 8,820	31-7-08	Tls. 5 for year ended 31-10-08	5	Tls. 134½ buyers
Hongkong Cotton Spinning, Weaving & Dyeing Co., Ld.	1901	$1,250,000	125,000	$10	$10	e $20,000	$9,553	30-9-08	50 cents for year ending 31-7-08	6	$8 sellers

FAR EASTERN STOCKS AND QUOTATIONS—(CONTINUED.)

STOCK.	WHEN ESTABLISHED	CAPITAL.	NO. OF SHARES.	VALUE.	PAID UP.	RESERVE	AT WORKING ACCOUNT.	DATE.	LAST DIVIDEND.	Approximate Yield per cent. per annum at Present Quotation.	CLOSING QUOTATIONS
International Cotton Manufacturing Co., Ld.	1895	Tls. 750,000	6) 10,000	Tls. 75	Tls. 75	Tls. 175,000	Tls. 8,372	31-12-08	Tls. 6 for year end. 30-9-06 (8%).	....	Tls. 90 sellers
Laou-kung-mow Cotton Spinning & Weaving Co., Ld.	1895	Tls. 800,000	8,000	Tls. 100	Tls. 100	none	Tls. 4,829	31-12-08	Tls. 4 for 1908	....	Tls. 108 buyers
Soy Chee Cotton Spinning Co., Ld	1895	Tls. 1,000,000	2,000	Tls. 500	Tls. 500	*l* Tls. 31,172	Tls. 15,911		Tls. 50 for 1906	....	Tls. 410 sales
MISCELLANEOUS.											
Bell's Asbestos Eastern Agency, Ld.	1895	£5,377.10s	11) 8,604	12/6	12/6	£1,500	£682	31-12-08	1s. 10½d. for 1908	10	$9¼ ex. div.
China-Borneo Co., Ld.	1903	$720,000	8) 60,000	$12	$12	$40,000	Nil.	31-12-08	$1.20 for 1908	8	$13¾ sales
China Light & Power Co., Ld.	1901	$550,000	50,000	$10	$10	none	$61,138	28-2-07	60 cents for year ending 28-2-06	8½	$6.60
Do. do. Special Shares	1907		17) 50,000	$1	$1						
China Provident Loan & Mortgage Co., Ld.	1898 *a*	$1,250,000	7) 125,000	$10	$10	$100,000	$3,407	31-12-08	80 cents for 1908	7¾	$9.65 sales
Dairy Farm Co., Ld.	1896	$300,000	40,000	$7½	$6	*l* $10,000 / $8,000	$48	31-7-08	$1.30 for year ending 31-7-08	10	$16¾ buyers
Green Island Cement Co., Ld.	1889	$4,000,000	400,000	$10	$10	$13,000	$3,756	31-12-08	Final of 50 cts. making 90 cts. for 1908	8	$8.80 sellers
H. Price & Co, Ld	1907	$120,000	19) 15,000	$10	$10	$5,000	$670	31-12-08	80 cents for year ending 31-12-08	9¼	$12
Hongkong Electric Co., Ld.	1889	$600,000	60,000	$10	$10	none	$5,195	29-2-09	$1.00 and bonus 20 cents for year ending 29-2-09	6	$20¾ sellers
Hongkong Ice Co., Ld.	1881	$125,000	5,000	$25	$25	*k* $150,000	$7,616	31-12-08	Final of $15 per share making in all $19 for 1908	10	$195 sellers
Hongkong Rope Manufacturing Co., Ld.	1883	$600,000	$60,000	$10	$10	$20,000	$8,790	31-12-08	Interim of $1 for a/c 1909	8½	$24
Maatschappij tot Mijn-, Bosch- en Landbouwexploitatie in Langkat	1902	Gs. 2,500,000	25,000	Glds. 100	Glds. 100	Tls. 547,500 / *i* Tls. 63,914 / 21 Tls. 547,500	Tls. 316,682	31-10-08	Second quarterly dividend of Tls. 12½ for % 1909	4	Tls. 1012½ sales
Peak Tramways Co., Ld.	1907	$750,000	25,000	$10	$10	$20,000	$2,204	30-4-09	80 cents on fully paid shares & 8 cents on $1 paid shares for year ending 30-4-09	6	$14¾ sales
Do. (New)			50,000	$10	$1					3	$1½
Philippine Co., Ld.	1904	$750,000	75,000	$10	$10	none	Ps. 18.640	31-12-08	None	....	$8½ buyers
Robinson Piano Co., Ltd.	1900	$200,000	22) 4,000	$50	$50	$5,000	$61,138	31-8-08	6% for ½ year ending 30.9.07	....	$50
Shanghai-Sumatra Tobacco Co., Ld.	1902	Tls. 600,000	9) 30,000	Tls. 20	Tls. 20	Tls. 24,820 / *w* Tls. 75,000	Tls. ● 5,250	31-10-08	Final of Tls. 5 making Tls. 8 for 1908	5¾	Tls. 146 sales
South China Morning Post, Ld.	1903	$150,000	6,000	$25	$25	none	*Dr.* $56,602	31-8-08	None	....	$23 sales
Steam Laundry Co., Ld.	1902	$100,000	20,000	$5	$5	none	$236	31-5-08	40 cents for year ending 30-5-08	7	$5¾ sales
Union Waterboat Co., Ltd.	1905	$500,000	15) 50,000	$10	$10	none	$172	31-12-08	60 cents for year-end. 31-12-1908.	5	$11 sales
United Asbestos Oriental Agency, Ld.	1896	$100,000	10,000	$10	$4	$35,000	$1,360	31-5-07	80 cts. on 9,900 ord shares & $19.80 on 100 founders shares for year ending 31-5-07	6¼	$13 sales
Watson (A. S.) & Co., Ld.	1886	$900,000	90,000	$10	$10	*e* $300,000 / $25,000	$2,613	31-12-08	Final of 30 cents making 60 cents for 1908	6¾	$8.70
Weismann Limited	1904	$17,500	175	$100	$100	$6,700	$13	31-7-07	10 per cent for year endg. 31.7.07.	....	$150
William Powell, Ld.	1901	$105,000	15,000	$7	$7	none	$3.95	30-6-08	Final of 30 cents making 80 cents for year ending June 30th 1906		$4 sellers
RUBBERS											
Anglo-Malay Rubber Co., Ltd. (fully paid)	1905	£150,000	46,500	£1	£1	....	....	....	30% = 6/- per share for year 1908	....	£7.
Do. Do. (partly paid)			103,500	£1	17/6						£6.15.
Balgownie Rubber Estate, Ltd.	1905 ††	$200,000 ‡‡	20,000 ††	$10 ††	$10	$7,400	$11,205	31-3-09	....	....	$50 [S'pore].
Castlefield Rub. Ld., [fully pd.]	1906	£35,000	6,000	1	£1	none	....	....	15% for year ending 31-12-08	....	£2.15/-
Do. Do. [contrib.]			24,000	£1	17/6						£2.12.6.
Highland & Lnd. Para R. Co.	1906	£310,000	=181,406	£1	£1	£8,784	....	....	25% for year ending 31-3-09	....	£3.13.6.
Do. Do. [fully paid]			123,540	£1	15/-						£3.7.6.
Do. Do. [partly paid]											
Kuala Lumpur Rubber Co., Ltd.	1906	£180,000	180,000	£1	£1	....	1,820	....	3% for year ending 30-6-08	....	£2.13.6.
Linggi Plantations, Ltd. (ord.)	1905 Reconst 1905	£100,000	+900,000	2/-	2/-	£4,000	....	....	60% for year 1908	....	£1.2.9.
Do. Do. (7% pref.)			10,000	£1	£1	....	....	....			Nominal
Ragalla Rubber Co., Ltd. (ord.)	1906 ††	$250,000	22,500 ††	$10 ††	$10	....	....	....	7% for year 1908	....	$26½ [S'pore].
Do. Do. (8% pref.)			2,500 ††	$10 ††	$10				....	....	Nominal
Ledbury Rubber Estates Ltd.	1908	£125,000	§§ 60,000	£1	£1	....	....	....	....	....	£2.7.6.
Do. Do. (contrib.			§§ 40,000	£1	7/6						£1.12.6.

LOANS AND DEBENTURES.	AGENTS FOR THE LOAN.	AMOUNT OF LOAN.	PAR VALUE.	OUTSTANDING BONDS.	WHEN PAYABLE.	CLOSING QUOTATIONS.
China Government, 7 per cent. Silver Loan 1886 E	Hongkong & Shanghai Banking Corporation.	Tls. 767,200	Tls. 250	1914	Mar. 31st and Sept. 30th each year until Mar. 31st, 1917	par.
Hongkong Hotel Company, Ltd., 6 per cent. Mortgage Debentures of 1899 ‡		$500,000	$500	§ all	Half yearly, June 30th and December 31st	par
Shanghai & Hongkew Wharf Company, Ltd., 6 per cent. Debentures of 1902		Tls. 543,900	Tls. 100	....	Half yearly, June 30th and December 31st	Tls. 103½
Astor House Hotel Company, Ltd., 8 per cent. Debentures of 1903		Tls. 500,000	Tls. 100	....	Half yearly, January 1st and July 1st	102½
Chinese Engineering & Mining Co., Ltd., 6 per cent. Debentures of 1903 †	....	£500,000	¶	£431,960	Half yearly, June 30th and December 31st	par.
International Cotton Manufacturing Co., Ltd. 7% Debentures of 1901	Russo Chinese Bank	Tls. 500,000	Tls. 100	‖	Half yearly, March 31st and Sept. 30th	Tls. 97½.

Plus interest

a Authorized capital $2,000,000.
b Building Reserve Account.
c Capital Reserve Fund.
d Depreciation Fund.
e Equalization of Dividend Fund.
f Exchange and Investment Fluctuation Account.
g Gold Reserve Fund
h Exchange Reserve Account.
i Insurance Fund.
j Reinsurance Fund.
k Contingencies Account.
l Legal Reserve Fund.
m Authorized Capital
n Sinking Fund.
o Raw Sugar Reserve Account.
p Premium on New Issue.
q Boiler Repairs and Renewals Account
r Repairs and Renewals Account.
s Silver Reserve Fund.
t Depreciation and Repair Account
u Underwriting Suspense Account.
v Special account
w Special Works Fund.
x Extra Reserve Fund.
y 72,560 owned by the Company.
z 7,200 shares unissued.
1 4,000 shares unissued.
2 First issue of 60,000 of which 10,411 unallotted.
3 5,000 shares unissued.
4 4,480 shares unissued.
5 5,000 shares unallotted.
6 1,616 shares unallotted.
7 75,000 shares unissued.
8 14,000 shares unissued.
9 17,000 shares unissued.
10 40,453 shares actually issued.
11 7,688 shares actually issued.
12 4,200 shares unissued.
13 500 shares unissued.
14 399 shares unissued.
15 22,277 shares unissued.
16 10,000 shares unissued.
17 Special shares are entitled to half of the profits.
18 Capital contributed by Chinese Government Kuping Tls. 5,000,000.
19 12,000 issued only.
20 Typhoon and Floods Insurance Fund
21 Special Cash Reserve.
22 1000 shares unissued.
* Based on last year's dividend.
** Based on present dividend.
‖ Only Tls. 134,000 taken up.
§ 216 held by the Company.
¶ In certificates of £20 and £100.
‡ Redeemable in 10 years, or at option of Company, the Company giving 6 months notice.
† Redeemable at par at rate of £10,000 per annum from 31st December 1903 to 31st December 95.
*** Redeemable at par on 30th June, 1915.
Dr. Deficit.
†† Singapore dollars.
‡‡ 4,880 shares unissued.
× 16,756 shares unissued.
§§ 25,000 shares unissued.
∥ 1140 shares unissued.

ADDITIONAL SHANGHAI SHARE QUOTATIONS

STOCK	CLOSING QUOTATIONS	HIGHEST AND LOWEST PRICES DURING THE WEEK	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	LAST DIVIDEND	WHEN PAID
Oriental Consolidated Mining Co., Ltd.	27s 6d.		G. $5,000,000	500,000	G. $10	G. $10	none	Interim of Gold .50 for 1909	June 30, 1909
Kiang pei-ting Coal & Iron Mine Co., Ltd.	Tls. 50		Tls. 500 000	5,000	Tls. 100	Tls. 50	—	First year	—
Vulcan Iron Works, Limited	Tls. 400		Tls. 500,000	1,000	Tls. 500	Tls. 500	—	Tls. 50 for year ended 31.8.06	Nov. 1, 1906
Yangtsze Wharf & Godown Co., Limited	Tls. 125 nominal		Tls. 250,000	2,500	Tls. 100	Tls. 100	Tls. 50 000	Tls. 15 for 1908	April 1, 1909
Wei-hai-wei Land & Building Co., Limited	Tls. 10 nominal		Tls. 91,850	3,674	Tls. 25	Tls. 25	—	——	—
Union Estate & Investment Co., Limited	Y. 105 sales		Y. 1,000,000	10,000	Y. 100	Y. 100	—	First year	—
Hotel des Colonies Company, Limited	Tls. 9 sellers		Tls. 112,500	9,000	Tls. 12½	Tls. 12½	Tls. 29,783	6% for 1907	May 29, 1908
Kalee, Limited	$100 nominal		$100,000	4,000	$100	$100	—	2% for 1908	July 3, 1909
Anglo-German Brewing Co., Limited	$85 buyers		$100,000	4,000	$100	$100	none	$7 for 1907	Mar. 12, 1908
Butler Tile Works, Limited	Tls. 50 nominal		Tls. 60,000	1,200	Tls. 50	Tls. 50	—	Tls. 3 for year ending 31.3.09	June 8, 1909
Major Bros., Limited	Tls. 40 sellers		Tls. 300,000	6,000	Tls. 50	Tls. 50	—	——	—
Oriental Ice Company, Limited	Tls. 50		Tls. 130,000	2,600	Tls. 50	Tls. 50	—	First year	—
Scharffs Oil and Bone Mills, Ltd.	Tls. 50		Tls. 200,000	4,000	Tls. 50	Tls. 50	—	First year	—
Shanghai Ice Company, Limited.	Tls. 13 sales		Tls. 200,000	8,000	Tls. 25		—	3% for 1907	Mar. 14, 1908
Shanghai Oil Co., Limited	Tls. 25		Tls. 175,000	7,000	Tls. 25	Tls. 25	—	First year	—
Campbell, Moore & Co., Limited	$10 buyers		$12,000	1,200	$10	$10	$9,000	$3 for 1905	Apr. 2, 1906
Dunning & Company, Limited.	$50 sellers		$100,000	2,000	$50	$50	—	$5 year ending 28.2.08	Apr. 15, 1908
J. Llewellyn & Co., Limited	$50 buyers		$72,000	1,200	$60	$60	—	7.20 for 1908	Apr. 1, 1909
Lane, Crawford & Company	$137½ sales		$250,000	2,500	$100	$100	—	Final of 3% making 6% for 1908	June 8, 1909
Mondon (E. L.) Limited	Tls. 6 buyers	137½	Tls. 225,000	9,000	Tls. 25	Tls. 25	none	——	—
S. Moutrie & Company, Limited	$48 sellers		$250,000	5,000	$50	$50	—	$4 for year ended March 31, 1908	June 18, 1908
Weeks & Company, Limited	$26½ buyers		$400,000	20,000	$20	$20	$10,000	Final of $1.20 making $2 for 1908	May 20, 1909
Dominion Rubber Co., Limited	Tls. 4		Tls. 225,000	22,500	Tls. 10	Tls. 4	—	First year	—
Kalumpong Rubber Co., Ltd.	Tls. 42 sellers		Tls. 700,000	14,000	Tls. 50	Tls. 50	** Tls. 11,844.48	6% for 1907	Nov. 29, 1908
Senawang Rubber Estates Company, Limited	Tls. 100		Tls. 250,000	2,500	Tls. 100	Tls. 100	—	——	—
Senawang Rubber Estates Company, New	Tls. 75				Tel. 100	Tls. 75			
Tebong Rubber and Tapioca Estate, Limited	20s.		£76,000	76,000	£1	£1	—	——	—
Eastern Fibre Co., Limited	Tls. 10 nominal		Tls. 300,000	30,000	Tls. 10	Tls. 10	—	——	—
Shanghai Mercury, Limited	Tls. 50 buyers		Tls. 105,500	2,100	Tls. 50	Tls. 50	—	Final of 6% making 10% for year ended 30.4.08	June 29, 1908
Shanghai Mutual Telephone Co., Limited	Tls. 62 buyers		Tls. 675,000	13,500	Tls. 50	Tls. 50	—	Tls. 3 for 1907	June 28, 1908
China Export Import & Lumber Company, Limited	Tls. 78 nominal		Tls. 350,000	500	Tls. 100	Tls. 50	—	10 p. c. for year ending 29.2.08	May 1, 1908
China Printing Co., Limited	Tls. 42½		Tls. 750,000	1,500	Tls. 50	Tls. 50	—	7% 1908	Apr. 18, 1909
Dallas Horse Repository Co., Ltd.	Tls. 25 nominal		Tls. 250,000	5,000	Tls. 50	Tls. 50	—	——	—
Hirano Mineral Water Co., Ltd.	Y. 15 sales		Y. 125,000	5,000	Y. 25	Y. 25	—	10%=yen 2½ for year ending 30th Sept. 08 Y. 1.20 for year ended Feb. 29	Apr. 26, 1909
E. E. Porter & Co., Limited	$50		$100,000	2,000	$50	$50	—	$6 for 1907	Apr. 22, 1908
Shanghai Electric & Asbestos Company, Limited	$20 sales		$125,000	5,000	$25	$25	—	8% for year ended Feb 28, 09	June 21, 1909
Shanghai Electric Construction Company, Limited	£11 buyers	£11	£300,000	30,000	£10	£10	—	First year	—

DEBENTURES

LOANS		PRICE—PLUS ACCRUED INTEREST	AMOUNT OF LOAN	OUTSTANDING	NOMINAL VALUE	RATE OF INTEREST	WHEN PAYABLE
Shanghai Municipal Debentures	1892	Tls. 92½	Tls. 50,000	Tls. 45,400	Tls. 100	5 %	June & Dec.
do	1893	,, 96	,, 125,000	" 32,000	" 100	5½ ,,	Do
do	1894	,, 104½	,, 105,000	" 60,000	" 100	6 ,,	Do
do	1895	,, 92½	,, 115,000	" 32,600	" 100	5 ,,	Do
do	1896	,, 92½	,, 140,000	" 131,800	" 100	5 ,,	Do
do	1897	,, 92½	,, 268,800	" 268,400	" 100	5 ,,	Do
do	1898	,, 104½	,, 300,000	" 60,000	" 100	6 ,,	Do
do	1900	,, 96	,, 33,900	" 31,700	" 100	5½ ,,	Do
do	1901	,, 104½	,, 250,000	" 200,000	" 100	6 ,,	Do
do	1902	,, 104½	,, 150,000	" 150,000	" 100	6 ,,	Do
do	1903	,, 101½	,, 490 500	" 490,500	" 100	6 ,,	Do
do	1904	,, 101½	,, 214,500	" 214,500	" 100	6 ,,	Do
do	1905	,, 104½	,, 320.000	" 320,000	" 100	6 ,,	Do
do	1907	,, 104½	,, 250,000	" 250,000	" 100	6 ,,	Do
Chinese Imperial Government Loan	1886 E	,, 250	,, 767,200	" 351,400	" 250	7 ,,	Mar. & Sept
Shanghai Land Investment Co., Debentures	1890	,, 102	,, 250,000	" 250,000	" 100	6 ,,	May & Nov.
do	1892	,, 96	,, 250,000	" 250,000	" 100	5½ ,,	June & Dec.
do	1894	,, 101	,, 250,000	" 250,000	" 100	6 ,,	Mar. & Sept.
do	1896	,, 92½	,, 250,000	" 250,000	" 100	5 ,,	June & Dec.
do	1900	,, 102	,, 250,000	" 250,000	" 100	6 ,,	April & Oct.
do	1901	,, 102	,, 250,000	" 250,000	" 100	6 ,,	June & Dec.
do	1901	,, 96	,, 100,000	" 100,000	" 100	5 ,,	May & Nov.
do	1902	,, 102	,, 400,009	" 400,000	" 100	6 ,,	June & Dec.
do	1905	,, 102	,, 250,000	" 250,000	" 100	6 ,,	Do
Shanghai Waterworks Co., Debentures	1894	,, 103	,, 100,000	" 100,000	" 100	6 ,,	Mar. & Sept.
do	1896	,, 92½	,, 100,000	" 100,000	" 100	5 ,,	June & Dec.
do	1899	,, 103	,, 50,000	" 50,000	" 100	6 ,,	Do
do	1900	,, 103	,, 100,000	" 100,000	" 100	6 ,,	Mar. & Sept.
do	1902	,, 103	,, 100,000	" 100,000	" 100	6 ,,	Do
do	1903	,, 103	,, 100,000	" 100 000	" 100	6 ,,	June & Dec.
Perak Sugar Cultivation Co., Debentures	1902	,, 101	,, 200,000	" 200,000	" 100	7 ,,	April & Oct.
Shanghai Gas Co., Debentures	1897	,, 92½	,, 100,000	" 100,000	" 100	5 ,,	Do.
do	1899	,, 102	,, 1,000,000	" 100,000	" 100	6 ,,	May & Nov.
do	1900	,, 102	,, 2,000,000	" 200,000	" 100	6 ,,	June & Dec.
Shanghai and Hongkew Wharf Co., Debentures	1902	,, 100½	,, 799,800	" 799,800	" 100	6 ,,	Do
Astor House Co., Debentures	1905	,, 103	,, 500,000	" 500,000	" 100	7 ,,	Do
British Municipal Council, Hankow	1901	Sh. ,, 105	H'kow Tls. 100,000	H'kow Tls. 100 000	" 100	7 ,,	June & Dec.
Shanghai Club Debentures	1907	,, 96	Tls. 170,000	Tls. 170,000	" 100	6 ,,	Do
Country Club Debentures		,, 97	,, 139,000	" 139,000	" 100	6 ,,	Do
do	1907	,, 97	,, 92,000	" 92,000	" 100	6 ,,	Do
Lane Crawford & Co., Debentures	1907	,, 100	,, 110,000	" 110,000	" 100	7 ,,	Mar. & Sept
Anglo-French Land Debentures	1908	,, 102½	,, 250,000	" 250,000	" 100	6 ,,	June & Dec.

SINGAPORE SHARE QUOTATIONS

(Courtesy Messrs. Fraser & Co., Brokers, Singapore, June, 1909)

Date of Formation	Capital	Capital paid up	No. of Shares Issued	Issue Value	Paid up	Reserve	Last Dividend	Name	Buyers.	Sellers.
								MINING		
1903	$300,000	300,000	30,000	10	10		12% for year ending 31-3-09	Belat Tin Mining Co., Ltd.	5.50	5.75
1907	$300,000	225,000	22,500*v*	10	10			Bruang Ltd.	6.25	6.50
1901	$600,000	600,000	60,000	10	10	25,000	10% for year ending 30-4-08	Bruseh Hydraulic Tin Mining Co., Ltd.	7.50	8.00
1903	£500,000	444,769	444,769*a*	1	1			Duff Development Co., Ltd.	6.25	6.50
1907	$400,000	375,000	37,500*b*	10	10			Kanaboi, Ltd.	1.50	2.00
1901	£60,000	60,000	60,000	1	1		2-6 interim for 1908.	Kinta Tin Mines, Ltd.	10.50	10.75
1906	£100,000	100,000	100,000	1	1			Kledang Tin Mining Co., Ltd.	3.50	3.75
1905	$150,000	99,000	9,900*c*	10	10	6,485.68	35% for year ending 31-12-07	Kuantan Tin Mining Co., Ltd.	3.75	4.00
1906	£120,000	120,000	120,000	1	1			Lahat Mines Ltd.	9.75	10.25
1906	£30,000	30,000	30,000	1	1			Malaya and Siam Corporation, Ltd.	....	5/-
1906	$450,000	450,000	45,000	10	10			Malacca Tin Dredging Co., Ltd.	2.25	2.50
1906	£250,000	179,500	500,000*e*	5/-	5/-			Pahang Consolidated Co., Ltd.	11/-	12/6
			54,500	1	1			" " " 7% *Pref.*	....	nom.
1907	£100,000	80,000	80,000*f**	1	1			Pengkalen, Ltd.	8.50	8.75
1904	£120,000	100,000	100,000*d*	1	1	6,000	45% for year ending 30-6-07	Pusing Lama Tin Mines, Ltd.	3.75	4.00
1907	$450,000	300,000	30,000*d**	10	10			Rahman Hydraulic Tin Ltd.	....	6.00
1905	£27,000	27,000	27,000	1	1		1/- interim during 1907	Rambutan, Ltd.	7.00	7.50
1892	£200,000	191,250	50,000	1	1	4,873	1/- paid January 1901	Raub Aust. Gold Ming. Co., Ltd. *Fully pd.*	6.25	6.50
			150,000	1	18/10		1/- " " "	" " " *Contributory*	5.75	6.00
1905	£40,000	40,000	40,000	1	1			Redhills Tin Mining Co., Ltd.	2.25	2.75
1900	$110,000	110,000	22,000	5	5		3% for year ending 22-1-09	Royal Johore Tin Mining Co., Ltd.	1.20	1.?5
1907	$550,000	500,000	50,000*l**	10	10			Salak South, Ltd.	6.50	6.75
1907	£80,000	80,000	80,000	1	1			Sempam Tin Mines, Ltd.	2.50	3.00
1906	$850,000	850,000	85,000	10	10	25,000	10% for year ending 31-12-08	Serendah Hydraulic Tin Ming. Co., Ltd.	7.75	8.00
1899	$230,000	230,000	23,000	10	10		3% for ½ year ending 31-12-08	Sipiau Tin Co., Ltd.	....	3.75
1909	$200,000	150,000	15,000	10	10			Sungei Gan Tin Mining Co., Ltd.	8.50	9.00
1907	£90,000	70,000	70,000*w*	1	1		1/- interim for 1908	Tekka, Limited	13.75	14.00
1906	£150,000	150,000	150,000	1	1			Tongkah Harbour Tin Dredging Co., Ltd.	18.00	20.00
1902	£160,000	160,000	160,000	1	1		5/- during 1907	Tronoh Mines, Ltd.	11.50	11.75
								RUBBE		
1905	£150,000	137,062 10/-	46,500	1	1		30% for year ending 31-12-08	Anglo-Malay Rub. Co., Ltd. *Fully paid*	7.10.0	7.12.6
			103,500	1	17/6		" " " " " "	" " " *Contributory*	7.5.0	7.7.6
1905	$200,000	151,200	15,120*c**	10	10	7,400	25% for year ending 31-3-09	Balgownie Rub. Estate Ltd. *Fully paid*	49.00	50.00
1904	£30,000	20,187 10/-	19,000	1	1			Batu Caves Rub. Co., Ltd.	5.7.6	5.11.0
			4,750*f*	1	5					
1906	£80,000	70,000	70,000*s**	1	1		5% for year ending 31-3-09.	Batu Tiga (Selangor) Rubber Co., Ltd.	1.18.6	2.1.0
1907	£30,000	22,500	18,000*k**	1	1			Bukit Lintang Rubber Estates, Ltd.	2.2.0	2.3.6
			6,000	1	15/-			" " " *Contributory*	1.16.0	1.17.6
1903	£70,000	66,700	66,700*g*	1	1	2,000	55% for year ending 31-12-08	Bukit Rajah Rubber Co., Ltd.	8.3.6	8.6.0
1906	£35,000	27,000	6,000	1	1			Castlefield (K.) R. Estate, L., *Fully pd*	2.15.0	3.0.0
			24,000	1	17/6			" " " " " *Contributory*	2.12.6	2.17.6
1904	£16,000	16,000	10,000	1	1		17½% interim for 1908.	Cicely Rubber Estates Co., Ltd.	9.10.0	9.17.6
			6,000	1	1		20% interim for 1908.	" " " " 5% *Pref.*	9.12.6	10.0.0
1905	£75,000	58,507	55,007*i*	1	1	1,000	17½% for year ending 31-12-08	Consolidated Malay Rub. Estates, Ltd.	6.12.6	6.15.0
			7,000	1	10					
1906	£110,000	102,500	102,500*r**	1	1		12% for year ending 31-12-08	Damansara (Selangor) Rubber Co., Ltd.	3.5.0	3.6.6
1906	$680,000	632,000	28,000	17	17			Hevea Rubber Planting Co. *Fully paid*	....	16.00
			12,000	17	17			" " " *Contributory*	....	12.00
1906	£310,000	274,973-5	181,454*j*	1	1	8,784	15% for year ending 31-12-08	Highlands & Lowds. Para Rub. Co., Ltd.	3.13.6	3.17.6
			123,546	1	15/-		" " " " "	" " " " *Contributory*	3.7.6	3.10.0
1905	£50,000	36,500	23,000	1	1			Kapar Para Rubber Estates, Co., Ltd.	3.5.0	3.10.0
			27,000	1	10/-			" " " *Contributory*	....	nom.
1906	£180,000	180,000	180,000	1	1		3% for year ending 30-6-08	Kuala Lumpur Rubber Co., Ltd.	2.17.0	2.17.6
1907	£100,000	81,000	90,000*o**	1	18/-		7% for year ending 30-12-08	Labu (F. M. S.) Rubber Co., Ltd.	2.17.0	2.19.0
1907	£320,000	232,395	197,395*z*	1	1	3,000	10% for year ending 31-12-08	Lanadron Rubber Estates, Ltd.	4.17.6	5.0.0
			70,000	1	10/-			" " " *Contributory*	4.7.6	4.10.0
1906	Gs 135,000	135,000	580	250	250			Langen Rub. and Cocoanut Co., Ltd.	285.00	300.00
1908	£125,000	75,000	60,000*m**	1	1			Ledbury Rubber Estates Ltd.	2.7.6	2.10.0
			40,000	1	7/6			" " "	1.12.6	1.15.0
1895	£100,000	98,324 8/-	883,244*a**	2/-	2/-	4,000	60% for year ending 31-12-08	Linggi Plantations Ltd., *Ordinary*	1.4.3	1.4.9
			10,000	1	1		7% for year ending 31-12-08	" " " 7% *Pref.*	....	nom.
1907	£140,000	107,000	107,000*k*	1	1			London Asiatic R. & Produce Co., Ltd.	2.7.6	2.10.0
1906	£300,000	300,000	115,000	1	1		7½% for year ending 31-12-07	Malacca Rubber Plants., Ltd. 7½% *Pref.*	6.15.0	7.0.0
			185,000	1	1			" " *Ordinary*	6.12.6	6.15.0
1903	£30,000	22,500	225,000*l*	2/-	2/-		45% for year ending 31-12-08	Pataling Rubber Estates Synd. Ltd.	1.3.6	1.4.0
1909	$500,000	450,000	43,000	10	10			Pegoh, Limited	17.00	17.50
1906	£85,000	85,000	85,000	1	1		10% for year ending 31-3-09	Perak Rubber Plantations, Ltd.	2.15.0	2.17.6
1906	$250,000	225,000	22,500	10	10			Ragalla Rubber Co., Ltd. *Ordinary*	29.00	30.00
		25,000	2,500	10	10			" " " 8% *Preference*	29.00	30.00
1904	£20,000	16,943 8/-	20,000*x*	1	1			Sagga Rubber Company, Limited	4.2.6	4.5.0
1904	$100,000	100,000	1,000*g**	100	100	20,000	25% for year ending 31-1-09	Sandycroft Rubber Co., Ltd.	600.00	625.00
1907	£100,000	80,400	48,000*p**	1	1			Seafield Rubber Co., Ltd.	3.0.0	3.2.6
			48,000	1	13/-6			" " " *Contributory*	2.9.6	2.11.0
1898	£30,000	30,000	300,000	2/-	2/-	3,000	75% for year ending 31-12-08	Selangor Rubber Co., Ltd.	1.15.0	1.15.6
1906	£65,000	65,000	65,000	1	1			Shelford Rubber Estate, Ltd.	1.8.0	1.9.0
1905	$500,000	500,000	5,000	100	100			Singapore Rubber Co., Ltd.	225.00	230.00
1903	$250,000	250,000	2,500	100	100			Singapore & Johore Rub. Co., Ltd.	250.00	275.00
1906	£175,000	174,615	174,615*n**	1	1		4½% for year ending 31-3-09	Straits Settlements (B.) Rub. Co., Ltd.	1.7.6	1.8.0
1906	£110,000	100,000	100,000*h**	1	1			Sungei Kapar Rubber Co., Ltd.	3.1.0	3.2.6
1907	£70,000	49,875	14,000	1	1			Sungei Salak Rubber Co., Ltd.	2.2.6	2.5.0
			41,000	1	17/6			" " " *Contributory*	2.0.0	2.2.6
1904	£50,000	45,710	41,920*m*	1	1			Sungei Way (Selangor) Rub. Co., Ltd.	2.17.6	3.0.0
			7,580	1	10			" " " *Contributory*	....	nom.
1907	£200,000	154,000	154,000*q**	1	1		5% for year ending 31-12-08	United Serdang (S.) R. Plantations, Ltd.	3.12.6	3.14.6
1904	£60,000	50,600	506,000*n*	2/-	2/-		80% interim for 1908	Vallambrosa Rubber Co., Ltd.	1.3.6	1.4.0
								GENERAL		
1908	$250,000	202,500	2,025*j**	100	100			Brunei Oil Royalty, Ltd.	....	90.00
1907	$1,500,000	1,065,150	25,000*i**	10	10		10% for year ending 31-12-08	Eastern Smelting Co., Ltd.	....	12.50
			116,450	10	7				9.50	9.75
1898	$225,000	225,000	4,500	50	50	150,000	15% & 2½% bon. for yr. end. 31-12-08.	Fraser & Neave, Ltd.	142.50	145.00
1905	$2,400,000	2,400,000	18,000	100	....	75,000	2½% for year ending 31-10-08	Howarth Erskine, Ltd.	77.50	82.50
			6,000	100	....		7% for year ending 31-10-08	" " 7% *Pref.*	....	100.00
1896	$1,000,000	1,000,000	6,000	100	100	600,000	10% for year ending 31-12-07	Katz Brothers, Ltd. *Deferred*	....	125.00
			4,000	100	100		8% " " " " "	" " 8% *Cum. Pref.*	....	nom.
1901	$34,000	34,000	3,400	10	10		20% for year ending 31-10-08	Maynard & Co., Ltd.	20.00	21.00
1899	$875,000	875,000	6,000	100	100	175,000	5% for year ending 31/12/08	Riley, Hargreaves & Co., Ltd.	62.50	65.00
			2,750	100	100		7% for year ending 31/12/08	" " " " 7% *Pref.*	90.00	92.50
1903	$600,000	250,000	25,000*o*	10	10		7½% for year ending 30-6-08	Singapore Cold Storage Co., Ltd.	10.25	10.50
1891	$30,000	30,000	600	50	50	23,000	10% for year ending 31-7-08	Singapore Dispensary Ltd.	52.50	55.00
1903	£400,000	400,000	400,000	1	1			Singapore Electric Tramways, Co., Ltd.	4/3	4/6
1904	$160,000	112,000	1,120*b**	100	100	11,200	5% for year ending 30/6/07	Straits Engineering Syndicate, Ltd.	....	30.00
1884	$200,000	200,000	2,000	100	100	35,000	10% during 1907	Straits Ice Co., Ltd.	....	150.00
1890	$500,000	498,000	4,980*e**	100	100	760,000*t*	10% for year ending 31-12-08	Straits Steam Ship Co., Ltd.	185.00	190.00
1887	$3,000,000	3,000,000	300,000	10	10	130,000 1,222,409*u*	10% & 5% bon. for half yr. end. 31-3-09	Straits Trading Co., Ltd.	51.50	52.50

a { 11,282 unissued / 43,949 6% debenture
b 2,500 unissued
c 5,100 "
d 20,000 "
e { 100,000 " *Ord.* / 45,500 " *Pref.*
f 6,250 "
g 3,300 "
i 12,993 "
j { 4,140 " / 860 subscribed by employees
k £40,000 6% Debentures 33,000 unissued
l 75,000 "
m 500 to be issued to employees
n 94,000 unissued.
o 35,000 "
t Sundry Reserves.
u Sundry Reserves.
v 7,500 unissued.
w 20,000 "
x 4,595 part-paid shares
z 52,605 unissued.
*a** 16,756 "
*b** 480 "
*c** 4,880 "
*d** 15,000 "
*e** 20 "
*f** 20,000 "
*g** 221 7½% Debentures.
*h** 10,000 unissued
*i** 8,550 unissued.
*j** 475 "
*k** 6,000 "
*l** 5,000 "
*m** 25,000 "
*n** 385 forfeited
*o** 10,000 unissued.
*p** 4,000 "
*q** 46,000 "
*r** 7,500 "
*s** £10,000 Convertible 6% Debentures.
*t** 200,000 unissued.
*u** 5,000 "
*v** 5,000 "

DEBENTURES

Name	Amount	Buyers.	Sellers.
Howarth Erskine, Ltd. 6%	$ 600,000	....	par.
Riley, Hargreaves & Co., Ltd. 6%	284,000	par.	2% p.
Sandycroft Rub. Co., Ltd. 7½%	22,100	....	nom.
Singapore Electric Tramways, Co., Ltd. 5%	£350,000	....	....
Singapore Municipal 6%	400,000	....	....
" " 5%	1,878,000	7%	....
" " 4½%	1,600,000	....	4% p.
" " 4%	602,900	....	5% d.
Straits Engineering Syndicate, Ltd. 6%	45,000	....	par.
Tanjong Pagar Dock Board 5%	1,050,000	....	....

YOKOHAMA SHARE QUOTATIONS

COURTESY A. C. HUTTON POTTS, SHARE AND GENERAL BROKER, YOKOHAMA, JULY, 1909.

STOCKS.	CAPITAL.	NO. OF SHARES.	ISSUE VALUE.	AMOUNT PAID UP.	RESERVE FUND.	AT WORKING ACCOUNT OR CARRIED FORWARD.	DATE.	LAST DIVIDEND.	FOR TERM.	CLOSING QUOTATION.
Brett & Co., Ltd.	-Y- 28,000	2,800	-Y- 10	-Y- 10			31-12-08	12½%	for 1 year	11 Buyers
Club Hotel, Ltd.	185,000	1,850	100	100	3,000	-Y- 768.96	31-3-08	7%	for 1 year	70 Nominal.
Grand Hotel, Ltd.	500,000	5,000	100	100	10,000		31-12-08	3%	for ½ year	100 Buyers.
Helm Bros., Ltd.	186,000	3,720	50	50	25,000	-Y- 6,395.55	31-12-08	17½%	for 1 year	80 Sales.
Langfeldt & Co., Ltd.	100,000	2,000	50	50		Dr. 2,038.97	31-12-08		for ½ year	50 Sellers.
C. Nickel & Co., Ltd. †	500,000	20,000	25	25		1,782.10	31-10-08	20%	for 1 year	43½ Buyers
Yokohama Engine and Iron Works *	500,000	10,000	50	50	50,000	-Y- 29,421.19	31-5-08	10%	for 1 year	70 Sales
Oriental Hotel, Ltd., Ordinary	250,000 (Ordinary and Preference)	3,000	50	50	306,090.49 (Ordinary and Preference)		31-8-07	12%	for 1 year	50 Nominal.
Oriental Hotel, Ltd., Preference		2,000	50	50				8%	for 1 year	50 Nominal.
The Union Estate and Investment Co., Ltd. ‡	1,000,000	10,000	100	100	6,000.00	1,753.03	30-9-08	7%	for 1 year	100 Nominal.

† 285,000 unissued.
‡ 475,000 unissued.

*-Y- 390,000 issued.
110,000 unissued.

DEBENTURE LOANS.	AMOUNT OF LOAN.	FACE VALUE OF DEBENTURES.	RATE OF INTEREST.	INTEREST PAYABLE.	CLOSING QUOTATION.
Brett & Company, Limited	11,500.00	100.00	7%	1 June and 1 Dec.	95 Sales.
Yokohama United Club	250,000.00	100.00	7%	30 June and 31 Dec.	100 Sales.
C. Nickel & Company, Limited	50,000.00	100.00	8%	1 May and 1 Nov.	110 Sellers.
Oriental Hotel, Limited	250,000.00	100.00	8%	1 April and 1 Oct.	100 Sellers.
Union Estate and Investment Co., Limited	250,000.00	100.00	6%	30 June and 31 Dec.	95 Sellers.

JAPANESE STOCKS.	FACE VALUE.	AMOUNT PAID UP.	LAST DIVIDEND.	DIVIDEND PAYABLE.	CLOSING QUOTATION.
Bonds & Debentures.					
Exchequer Bonds 2nd issue	-Y-100	-Y-100	5%	March and Sept.	-Y-101.50
Exchequer Bonds 3rd issue	100	100	5%	March and Sept.	,, 100.50
Consolidated Bonds (Seiri)	100	100	5%	June and Dec.	,, 93.40
War Bonds (Gunji)	100	100	5%	June and Dec.	,, 93.40
Imperial 5% Bonds	100	100	5%	March and Sept.	,, 93.50
Special 5% Bonds (issued 1906)	100	100	5%	June and Dec.	,, 93.40
Yokohama Water Works Bonds	100	100	6%	June and Dec.	,, 98.00
Yokohama City Public Loan Bonds	100	100	6%	March and Sept.	,, 99.00
Osaka City Harbour Construction Bonds	100	100	6%	June and Dec.	,, 99.50
Osaka City Public Loan Bonds	100	100	6%	June and Dec.	,, 90.00
Kawasaki Dock Yards Co.'s Debentures	100	100	7%	June and Dec.	,, 98.00
Tokyo Race Associations "	500	500	30%	June and Dec.	,, 85.00
Railways & Electric Trams.					
Tokyo Railway Company, Limited	50	50	5%	June and Dec.	,, 63.60
Yokohama Electric Tramway Company, Limited	50	50	6%	July and Jan.	,, 43.00
Keihin Electric Tramway Company, Limited	50	50	6%	June and Dec.	,, 62.70
Southern Manchurian Railway Co., Ltd.	100	20	6%	June and Dec.	,, 33.00
Hanshin Electric Tramway Co., Ltd.	50	50	12%	May and Nov.	,, 118.00
Cotton Spinnings.					
Kanegafuchi Cotton Spinning Company, Limited	50	50	14%	July and Jan.	,, 99.30
Fuji Gassed-yarn Company, Limited	50	50	14%	July and Jan.	,, 107.65
Tokyo Cotton Spinning Company, Limited	50	50	5%	July and Jan.	,, 40.00
Imperial Hemp Weaving Company, Limited	50	50	12%	July and Jan.	,, 68.75
Nisshin Boseki Kabushiki Kaisha	50	12½	5%	—	,, 12.90
Sugar & Beer Cos.					
Dai-nippon Sugar Refinery Company, Limited	50	50	......	May and Nov.	,, 19.50
Ensuiko Sugar Refinery Company, Limited	50	15	20%	June and Dec.	,, 33.25
Dai-nippon Beer Company, Limited	50	50	12%	July and Jan.	,, 73.55
Kirin Brewery Company, Limited	50	50	6%	July and Jan.	,, 45.00
Docks & Steamships.					
Yokohama Dock Company, Limited	50	33	12%	June and Dec.	,, 57.00
Uraga Dock Company, Limited	50	50	......	July and Jan.	,, 11.50
Kawasaki Dockyard Company, Limited	50	50	12½%	Feb. and Aug.	,, 52.00
Nippon Yusen Kaisha	50	50	10%	May and Nov.	,, 77.70
Hokkaido Tanko S. S. Company, Limited	50	50	14%	July and Jan.	,, 44.50
Miscellaneous.					
Tokyo Electric Light Company, Limited	50	50	12%	June and Dec.	,, 90.60
Tokyo Gas Company, Limited	50	50	13%	July and Jan.	,, 98.00
Yokohama Union Electric Light Company, Limited	50	50	14%	July and Jan.	,, 87.00
Fuji Paper Mills	50	50	6%	June and Dec.	,, 33.25
Otaru Timber Company, Limited	50	50	......	March and Sept.	,, 15.00
Hoden Petroleum Company, Limited	50	50	20%	April and Oct.	,, 98.90
Tokyo Rope Manufacturing Company, Limited	50	50	18%	June and Dec.	,, 103.00
Japan Horse Improvement Company, Limited	50	50	15%	March and Sept.	,, 5.50
Tokyo Stock Exchange Company	50	50	15%	June and Dec.	,, 153.50
Osaka Electric Light Company, Limited	50	50	10%	July and Jan.	,, 129.00
Kobe Electric Light Company, Limited	50	50	14%	July and Jan.	,, 96.50

BANGKOK SHARE QUOTATIONS

(COURTESY MESSRS. EDWARDS & CO., BANGKOK, SIAM.)

NAME.	BUYERS.	SELLERS.	QUOTATION.	ESTABLISHED.	CAPITAL.	NO. OF SHARES.	ISSUE VALUE.	AMOUNT PAID UP.	RESERVE FUND	LAST DIVIDEND	WHEN PAID OR PAYABLE.
Siam Electricity Co., Ltd.	Tcs. —	Tcs. 370	Tcs. 370	1901	Tcs. 3,383,296	35,000	£ 10	£ 350,000	Tcs. 418,174.31	12% & 12½ T. bon.	Feb. 29, 1908
Paknam Railway Co., Ltd.	,, —	,, —	,, 185	1893	,, 400,000	5,000	Tcs. 80	Tcs. 400,000	,, 80,000	6% & 2 Tcl. bonus for ½ year ending	Dec. 31, 1907
Siam Tramway Co., Ltd.	,, —	,, 150	,, 150	1905	,, 1,450,000	6250 Shares, 7250 Deb., 1000 P. Shares	,, 100	,, 1,450,000	—	2%	Mar. 31, 1908; Sept. 30, ,,
Meklong Railway Co., Ltd.	,, —	,, 105	,, 105	July 12, 1907	,, 2,230,000	22,300	,, 100	,, 2,230,000	17,316.22	—	—
Bangkok Manufact. Co., Ltd.	,, —	,, 130	,, 135	1898	,, 400,000	4,000	,, 100	,, 400,000	—	None	—
Howarth Erskine, Ltd.	,, —	,, —	,, 140	1905	$ 2,400,000	24,000	$ 100	$ 2,400,000	$ 40,000	5%	Oct. 31, 1908
Bangkok Dock Co., Ltd.	,, —	,, —	,, 150	1865	Tcs. 1,000,000	6,000	Tcs. 100	Tcs. 1,000,000	Tcs. 270,000; 60,000	12½% & 2½ Bonus	Dec. 31, 1907
Siam Steam Packet Co.	,, —	,, 70	,, 70	1898	,, 190,000	2,625	,, 50	,, 131,250	,, 36,000	11%	Dec. 31, 1907
Siam Commercial Bank	,, —	,, —	,, 1,100	1906	,, 3,000,000	3,000	,, 1,000	,, 3,000,000	,, 140,000	5%	Mar. 31, 1907
Menam Motor Boat Co., Ltd.	,, —	,, —	,, 100	1905	,, 200,000	2,000	,, 100	,, 125,000	—	—	—
Transport Co., Motor, Ltd.	,, —	,, 100	,, 100	1906	,, 200,000	4,000	100	£ 4, per Share	—	—	—
Jenderata Rubber Co *	,, —	,, —	79		£ 17,580		£ 10				
Siam Steam Navigation Co., Ltd.	,, —	,,	320		Tcs. 2,000,000		Tcs. 200				

*6 Calls paid

PHILIPPINE SHARE REPORT

JUNE 1ST, 1909

Name	When Incorporated	Authorized Capital	Issue Value of Share	No. of Shares	Subscribed	Paid up	Reserve	Working %	Date	Last Dividend	Closing Quotations
American Drug Store	1908	₱ 100,000	₱1,000	100	40	₱1,000	...	₱ 5,000	Jan. 4, 1909	...	No Sellers.
*Banco Español Filipino	1851	3,000,000	200	15,000	8,439	200	₱225,000	...	...	7% for year 1908	190 nom.
Benguet Consolidated Mining Co	1903	2,000,000	2	1,000,000	495,000	2	...	38,000	Feb. 2, 1909	...	No Sellers.
Benguet Commercial Co., Ltd	1908	200,000	10	20,000	7,360	10	...	...	...	7% for year 1907	₱10.
Cadwallader-Gibson Lumber Co	1908	1,000,000	100	10,000	8,650	100	...	...	...	...	No Sellers.
*Camote-Clayton Mining Co	1909	400,000	10	40,000	20,000	10	...	...	...	...	₱10.
*Compania Maritima	...	1,018,000	200	5,090	5,090	200	...	...	...	...	₱40 buyers
*El Varadero de Manila	...	350,000	100	3,500	3,500	100	...	...	...	...	Sellers 70
Export & Import Lumber Co	...	200,000	200	1,000	1,000	200	...	...	...	...	No sellers.
*Fabrica de Hielo de Manila	...	350,000	50	7,000	7,000	50	...	...	...	18% for year 1908	₱80 sellers
*Germinal Cigar Factory	...	500,000	500	1,000	1,000	500	₱285,000	...	...	6% for year 1908 and 6% on capital	750 sellers
H. E. Heacock Co	1909	100,000	100	1,000	800	100	...	...	...	First year	No sellers.
*Headquarters Mining Co. (Inc.)	1908	600,000	10	60,000	35,000	10	...	...	...	...	₱10.
Insular Lumber Co	1907	2,000,000	200	10,000	9,000	200	...	...	...	...	No sellers.
Juan Seiboth Co., Ltd	1908	150,000	20	7,500	500	20	...	...	...	First year	...
*La Concha Button Factory	...	75,000	100	750	750	100	...	...	...	10% for year 1908	₱110 sellers.
Lambert, Springer Co	1908	200,000	1,000	200	80	1,000	...	...	...	...	No sellers.
Luzon Stevedoring Co	1909	250,000	25	10,000	4,200	25	...	...	...	First year	...
Newspaper Publishing Co.	1907	400,000	100	4,000	3,740	100	...	...	Dec. 31, 1908.	½ of 1% interim for 1908	No sellers.
Walter E. Olsen Co., Inc	1909	500.000	100	5,000	2,033	100	...	...	...	First year	No sellers.
Paracale Gold Dredging Co	1907	£10,000	£1	10,000	9,000	£1	...	...	...	...	£1.10 s.
Palomar Park Amusement Co	1908	300,000	...	300,000	60,312	.50	...	...	...	...	₱1.
Phil. Hemp Machine Co., Ltd	1907	1,000,000	100	10,000	8,500	100	...	...	...	...	₱100
Philippine Publishing Co	1907	600,000	200	3,000	2,181	200	...	...	Mar. 1st, 1909	₱3 a share for 1908	₱50
Port Banga Lumber Co.	1908	100,000	1.000	100	934	93,400	None.	40,000	First Saturday in January	None	No sellers.
The Philippine Gold Dredging Co	1907	200,000	10	20,000	20,000	10	...	...	...	...	No sellers.
*Philippine Co., Ltd	...	750,000	10	7,500	7 500	10	...	...	...	...	₱5 buyers.
Philippine Rosin & Turpentine Co	...	150,000	1	150,000	70,000	1	...	...	...	First year	...
The Rosenstock Pub. Co	1908	75,000	10	7,500	6,000	10	...	...	...	...	No sellers.
*San Nicolas Iron Works	...	300,000	500	600	600	500	...	...	...	...	₱200 sellers.
San Mauricio Gold Mining Co	1908	4,000,000	200	20,000	...	...	...	...	...	First year	No sellers.
Tarlac Railway Co	1906	150,000	100	1,500	1,500	100	...	₱9,674.75	June 30, 1908.	...	No sellers.
Union Hemp Machine Co	1909	50,000	10	5,000	2,600	10	...	...	...	...	No sellers
Zamboanga Cold Storage Co	1903	40,000	400	100	200	200	₱ 8,500	...	May 1st, 1909.	20%	₱120.

* John T. Macleod's share list

PHILIPPINE BONDS

	Dated	Authorized	Issued	Outstanding	Par Value	Rate of Int.	When payable	Last Quotation
Philippine Friar Land Bonds	Feb. 1st, 1904	$7,000,000	$7,000,000	$7,000,000	$ 100	4%	Feb. 1, 1914	104½
Public Works and Permanent Improvement Bonds	March 1, 1905	$5,000,000	$2,500,000	$2,500,000	$ 100	4%	March 1, 1915	104½
Do.	Feb. 1, 1906	...	$1,000,000	$1,000,000	$ 100	4%	Feb. 1, 1916	104½
Manila Sewer and Water Works Improvement Bonds	June 1, 1905	$4,000,000	$1,000,000	$1,000,000	$ 100	4%	June 1, 1915	104½
Do.	Jan. 2, 1907	...	$2,000,000	$2,000,000	$ 100	4%	Jan. 2, 1917	104½
*Philippine Railway First Mortgage Fourt per cent Thirty Year Sinking Fund Gold Bonds	July 1, 1907	$15,000,000	$5,736,000	$5,736,000	$1000	4%	July 1, 1937	97

*Payment of interest guaranteed until maturity or edemption by the Philippine Government.
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THE IMPERIAL NAVY OF CHINA

His Excellency Admiral SA CHEN-PING (C. P. SAH)

HEAD OF THE NEWLY CREATED ADMIRALTY BOARD

The difficult task of reorganizing the Imperial Chinese Navy will fall on his shoulders. His past experience and undoubted ability fully qualify him for the work, and the appointment reflects great credit on the Regent's Judgment.

(From a photograph taken at Amoy, November, 1908, on the occasion of the American Battleships' visit to that port.)

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SPECIAL SUPPLEMENT TO
THE FAR EASTERN REVIEW
SEPTEMBER, NINETEEN HUNDRED AND NINE

U of M

His Imperial Highness, Prince TSAI HSUN

HEAD OF THE IMPERIAL CHINESE NAVY

Brother of the Late Emperor KUANG HSU and of Prince C'HUN, The Regent

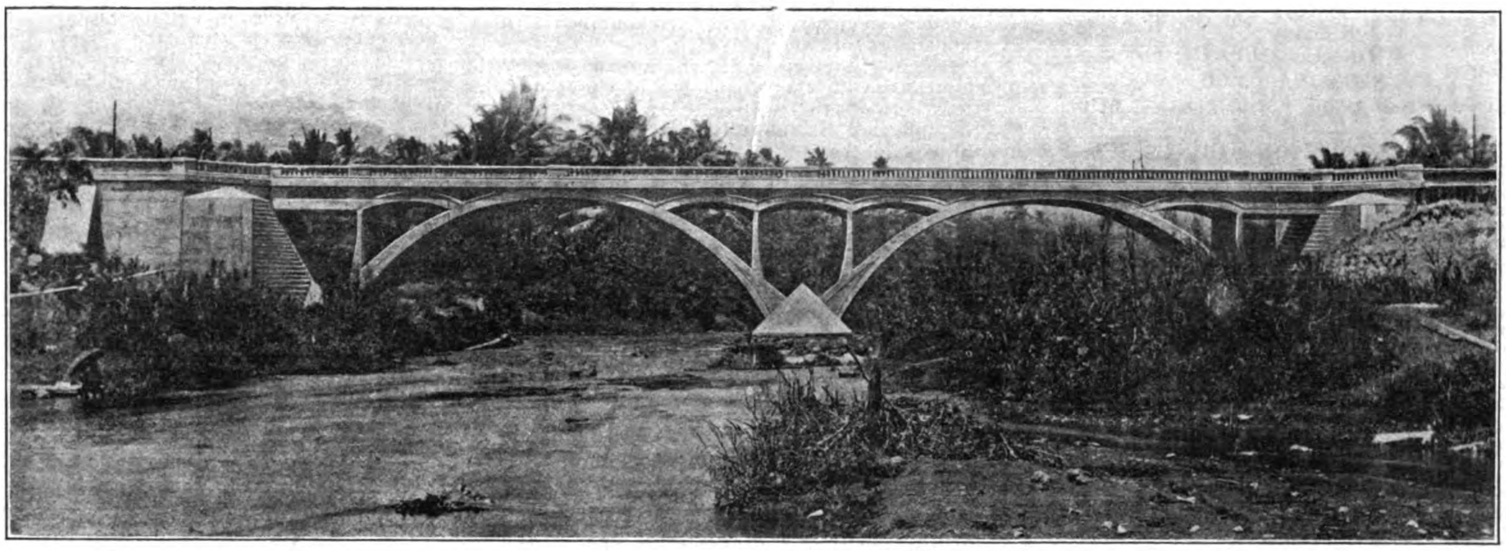
From a recent Photograph for exclusive publication in *The Far Eastern Review*

THE FAR EASTERN REVIEW
COMMERCE · ENGINEERING · FINANCE

VOL. VI. MANILA, P. I., SHANGHAI, AND YOKOHAMA, SEPTEMBER, 1909 No. 4

PARABOLIC ARCH BRIDGE IN ALBAY

Among the most important structures completed by the Bureau of Public Works in the Philippine Islands is the parabolic arch bridge over the Banao River in the Mayon watershed which was opened to traffic last March and formally opened in May. This bridge replaced the old Spanish bridge which was destroyed by an earthquake and had not been reconstructed for years. It is on the Legaspi-Ligao road, one of the most important thoroughfares in the Albay hemp district. Previous to this construction there was a ford at this point, and on account of the tremendous volume of water, it was impassable during the rainy season. As hundreds of bullcarts pass over this road daily, the long delays waiting for freshets to subside, caused great inconvenience and made transportation cost almost prohibitive during this season.



PARABOLIC ARCH BRIDGE LEGASPI-LIGAO ROAD, ALBAY, REINFORCED CONCRETE, KNOWN AS THE GOVERNOR REYNOLD'S BRIDGE

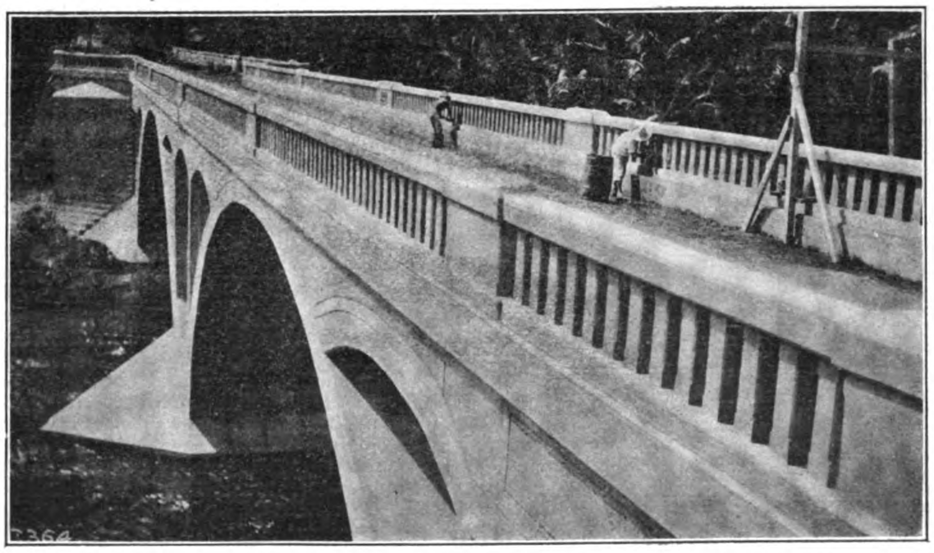
The bridge is located almost west of the famous volcano of Mayon, and is known as the Governor Reynold's Bridge in honor of the American governor of Albay province of that name, who took great interest in improving the roads of the province and increasing facilities of transportation.

The bridge may be designated as a Reinforced Concrete Two Span Parabolic Arch Bridge. It has two spans of 83 feet each with a rise of 25 feet. The width of arch ring is 20 feet and the roadway 18 feet wide clear of the curbs. The roadway is carried on reinforced concrete secondary arches supported by the main arch rings and at the ends by retaining walls. The length of the bridge proper is 240 feet and the total length including approaches, 1,262 feet. The heighth of roadway from the bed of the river is approximately 40 feet. In view of the fate of the old Spanish structure, the new bridge was constructed along lines designed to give it maximum protection against damage from earthquakes.

Besides the bridge proper a sidewalk and reinforced balustrades were constructed on the old retaining walls of the approaches. The total outlay for bridge, sidewalk and balustrades amounted to approximately ₱55,000.

The work was directly under the supervision of Mr. Oliver D. Filley, Supervising Engineer, Bureau of Public Works.

Some idea of the amount of material required in the construction may be gathered from the fact that 2,500 barrels of Green Island Cement were used.



ANOTHER VIEW OF THE GOVERNOR REYNOLD'S BRIDGE.—2500 BARRELS OF GREEN ISLAND CEMENT USED IN CONSTRUCTION

The illustrations herewith give comprehensive idea of the bridge and its design. Its adaptation to a section where tremendous volume of water rushes down from the mountain every rain is apparent, and as a permanent structure it is a monument to governmental enterprise. Its graceful lines add to its desirable qualities as a part of the landscape.

This structure is typical of the class of construction in bridges that the Bureau of Public Works is carrying out all over the islands. During the fiscal year ended June 30th, 1909, permanent steel and reinforced concrete bridges were designed to the value of ₱1,500,000 and of this work over ₱1,000,000 represented the amount spent on completed work. The balance is either in course of construction or awaiting adjustment of appropriations.

THE FAR EASTERN REVIEW

GEO. BRONSON REA, M. E.
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WILLIAM CROZIER, Editor.

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THE NEW AMERICAN MINISTER TO PEKING

The appointment of Mr. Charles R. Crane, of Chicago, to represent the United States at Peking has met generally with approval, not only by the commercial and financial interests throughout the United States, but by that large body of Americans who are in sympathy with President Taft's policy with regard to China and her future. Of this appointment the *Journal of the American Asiatic Association* says:

"The appointment of Mr. Charles R. Crane, of Chicago, as Minister to China meets the unqualified approval of all who know him, and has the obvious merit of being dictated by an honest desire to find the man best fitted to meet the requirements of a trying position. It is evident that neither personal influence nor political pressure had anything to do with Mr. Crane's selection, and the sacrifices which the acceptance of the mission must entail on a man identified with business interests so important as those which Mr. Crane represents are sufficient evidence of his possession of a high sense of public duty. Mr. Crane not only knows China, but he traveled extensively in central Asia, and has an unusually wide acquaintance with the empire of Russia. At a time when the President of the United States is a man specially impressed with the importance of closer relations between the two countries, and when all the influence of the Administration is being thrown on the side of enlarging the financial and commercial interests of our people in China, it is eminently fitting that the new Minister should be a man of business training and experience, as well as one in thorough sympathy with the Chinese policy of the President. Mr. Crane's public utterances since his appointment indicate that he is fully impressed with the magnitude of the opportunity which offers for the extension of American influence in China, and that he is not unfamiliar with the character of the difficulties which he is likely to encounter in making that influence felt."

When it is remembered that President Taft took five months to search out the man for this post, some idea may be gathered of the publicity and interest with which the appointment was awaited. Usually the public is not taken into the confidence of the appointing power until after an appointment is decided upon, but in this case, President Taft made no secret of his desire to find some thoroughly equipped American who would prove adequate to the task of confirming America's policy towards China, and in furthering America's interests in the Empire. That President Taft has succeeded in making a selection that is heartily endorsed may be inferred from the generous editorial approval that followed the announcement of Mr. Crane's appointment.

Mr. Charles R. Crane is not unknown in the Far East and, indeed, his familiarity with Far Eastern conditions and especially with China had much to do with the President's choice. Of his career little has been published that gives an adequate idea of the man, but as the *Exporters' and Importers' Journal* puts it, "Mr. Crane is in no sense a diplomatist, according to the usual significance of the word; nor is he a professed politician. He is simply a clear headed man of business, who has seen a great deal of the world and has absorbed the wisdom that such a career is calculated to inspire."

This about sizes up the man who has been chosen for the most important post in the gift of the administration and one we feel certain he will fill with great credit. Referring further to Mr. Crane's career the *Journal* says:

"He is one of the few men born to the enjoyment of wealth, who is a self made man in every sense of the phrase. He is the son of Richard T. Crane, Sr., who is vigorously opposed to the modern systems of education. He was reared with the idea that a college education is by no means essential to the success in life of a man who has a brain of his own and is disposed to use it. His school days ended when he was graduated from the public schools, and what learning he has gathered since then has been drawn from the books he has read, and they are unusually many, and from his travels through the world and the observations he has made of humanity and its struggles.

"From the public schools Mr. Crane stepped into his father's workshop and started his career at the work bench, instead of spending four years at college and winning a degree. He learned the business of the Crane Company from the top to bottom upward, serving in various capacities, from the turning of the lathe to the stool of the book-keeper. His progress in the mastery of the details of the business was rapid. He had a brain and justified, to an extent, the theory of his father by using it."

The result of his thoroughness in mastering the business was his election to the office of first vice-president of the company in 1894, and the charge of the foreign trade in plumbing supplies, tubing, pipe and elevators manufactured by the company. "To Charles R. Crane is due largely the reputation which the company has attained in the foreign markets. His management was skillful, tactful, and shrewd," says the *Journal.*

"It was in this capacity that Mr. Crane became a great traveler, a linguist, a connoisseur in paintings, a book collector, and a devoted student.

"Early in the course of his business affairs, he went to Russia where the Crane Company has extensive interests. He went into all the provinces of the country, met officials and peasants and made a close study of life in the realms of the Tsar. He was well received at the Russian court and soon became a recognized authority on Russian affairs, both political and social. When he was not in Russia or Chicago, he was off ranging the globe elsewhere. Continual travel, keen power of observation, and continuous study soon developed in him a deep knowledge of men and affairs.

"During his travels abroad Mr. Crane spent a great deal of time in China, his business interests taking him into practically every province of the Empire. He came in close contact with all classes of Mongolians, and in his Michigan Avenue home, Chicago, is a large collection of Chinese curios.

"In all his knocking about he was absorbing the language of the nations he visited. In his home are books written in a dozen different languages, all of which he can read without the use of a lexicon. It is said that he can read without difficulty twelve different languages, and speak with ease and fluency six or eight of them.

"Mr. Crane's qualifications for the post are really extraordinary, and considering the awakening of China to the necessity of joining the modern army of progress, the United States could have found no other man similarly well equipped to render the service which she shall require from her minister to that country. Ever since early manhood he has been intensely interested in Asia, its people, and its institutions and he has a familiarity with them which is rare, indeed, for an American. He is not only familiar with the social and political conditions of the Far East, but he has a practical knowledge of the commercial conditions which will be of value in furthering trade between the two countries. These qualifications, coupled with his high personal character and his sincere devotion to the public welfare, make him an ideal man for what is probably not only the most important diplomatic position to be filled by President Taft, but also the most difficult to fill properly.

"Western businessmen and manufacturers are enthusiastic over the choice the President has made. They believe this is a critical time in the business comity between China and the United States, and they feel that Mr. Crane is just the sort of man needed. They are particularly hopeful that he will pave the way for the Panama canal to mean everything that it should mean as a commercial highway and short cut from American factories and farms to the Chinese market."

We learn that politics had nothing to do with Mr. Crane's appointment. In politics Mr. Crane is a "Cleveland Democrat" and belongs to the Iroquois Club, a strong Democratic organizations. He is also president of the Municipal Voter's League that stands for clean politics and a high plane of citizenship, and is not identified with professional politics.

Thus the new American minister to Peking is a high type of American who stands for the best in American institutions. He goes to Peking untrammeled and has no object but to serve his country faithfully and advance her interests.

The choice of the REVIEW for this post to succeed Minister Rockhill was Mr. Charles Denby, formerly Consul General at Shanghai, as we believe such a promotion would have met with general approval of all interests in the Far East and at the same time made for reward of long and faithful service. President Taft, however, decided on a different course, and while Mr. Denby did not receive the recognition we believe he deserved, Mr. Crane may rest assured he will be loyally supported by all who have the best interests of America in the Far East at heart.

CHINESE RAILWAY LOANS AND AGREEMENTS

For a time the European and American press devoted much space to a discussion of the Hankow-Szechuan railway loan and, particularly, the participation of a group of American capitalists. Then we were entertained with much comment on the differences between Japan and China over the reconstruction of the Antung-Mukden Railway. Now it would appear that everything has been arranged to the satisfaction of all parties interested. The Hankow-Szechuan loan has been increased to £6,000,000 and the British, American, French and German groups participate for equal portions. The agreement between China and Japan in regard to the reconstruction of the Antung-Mukden railway has been signed and all diplomatic difficulties between the two countries amicably arranged.

Commenting on the result of the negotiations in regard to the Hankow-Szechuan Railway Loan, the *London and China Express* says:

"That the dispute has been settled is satisfactory. No one contested the right of United States financiers to participate in the Hankow-Szechuan Line. What did not present itself as wholly acceptable was the method and time adopted to enforce the claim, after having allowed it to remain apparently dead for so long. It was thought, and not unnaturally, that the arrangements which had been come to with the Chinese Government should be allowed to stand, and that American participation, which would be welcome from political and financial standpoints, should take its share in any future operations. This view was felt all the more when it became so decidedly apparent that the financial group had been stirred up into action by President Taft and the Secretary of State. Little official news has come through from Peking, but it was understood generally that the definite settlement of the loan question after the many vicissitudes it has experienced in the last six months might be reached on the lines that the American group received a one-fourth participation. It is doubtless this principle of participation which has been decided in Peking whither negotiations were transferred after the inconclusive conferences of the financial groups in London, Paris, and Berlin. The remaining matters, such as the time and form of issue, will be considered in Europe by the financial groups interested, namely, the British and Chinese Corporation, the Hongkong and Shanghai Bank, Messrs. J. P. Morgan and Sons, the Banque de l'Indo-Chine, and the Deutsch-Asiatische Bank. Anyway, the principle has been settled and the preliminary agreement has been signed with the Chinese Government. Details will now have to be concluded. The rate of interest remains at 5 per cent., and it is believed the price of the loan to China will be the same as when the loan for £5,500,000 signed before, by the three European groups, was negotiated. These details will naturally take some little time, and no period can yet be stated for the issue of the loan, but it will probably make its appearance to the public in about a month's time. In America the settlement reached has been hailed as a triumph of diplomacy. The State Department looks on it as a principle gained, and not merely as a question of a comparatively small amount of money. It is considered as a notice to China as well as Europe that the United States intends to demand and obtain its full share of the industrial and commercial development of the Middle Kingdom Unfortunately its purport is missed by many American papers who seem out to bulldose those whom it thought were likely to thwart it, but who, as a matter of fact, were ready to cordially admit the principle. It was the method, as we have said, that presented elements of objection, not the main fact itself. That the co-operation of the United States in such questions was desirable, politically and financially, was admitted directly the respective sides met. A section of the American Press has gone far beyond any facts warranted by pointing to the United States as the especial friend of China against Japanese ambitions supported by British diplomacy. The campaign in force is to represent the United States as China's one true friend in the attempt to hold off Japan, while England is pictured as alarmed by the threat to her commercial supremacy in the Celestial Empire from across the Pacific. It is unnecessary to say that Americans who know China will know that such statements are very wide of facts. The larger part of the population knows, however, little of international affairs, and less still of matters in China. The amount of the present loan when divided by four does not bulk large in each part; American enthusiasm will have a chance to manifest its new ardour by its subscriptions to its portion. On broad lines, American participation is to be welcomed, for America stands for the open door in China. As a London daily remarks, it is because the United States stands firmly by this principle, and because Mr. Taft is determined to insist on its observance that Great Britain must view with satisfaction the new activity of American policy in the Far East."

The Mukden-Antung Railway dispute has been settled amicably, and it is believed that the same may be said of the policing of the territory along this railway, which is now the only possible source of difference between the two governments. According to the *Japan Mail* it would seem that China was willing to make any concession provided that her sovereign rights in regard to the Chintao were recognized, and, throughout the negotiations, Japan did not insist on extending Korean sovereignty over this section, but claimed the right to provide protection for Korean subjects. China contended that all the Koreans settled in Chientao had accepted Chinese sovereignty and nationality and were therefore to be treated as Chinese subjects. Chinese sovereignty is for the present recognized and Japan will control Koreans, that venture in future across the border, through its consulates. But Japan has won her battle for the opening of that territory to foreign trade and residence. The compromise on both sides indicates a better feeling between the two countries, and the opening of Chientao to foreign trade, while recognizing China's sovereignty, must receive general approval abroad and be credited to Japan's tact and diplomacy.

Of this the *Japan Mail* feels justified in directing attention to the fact that: "the nations will be compelled to credit Japan's sincerity in the cause of peace. Moreover, just as the Portsmouth Treaty was used by Japan as an instrument for opening Manchuria to the tradal world by providing for the establishment of 16 open marts, so also she has seized this occasion to bring Chientao within the sphere of free commerce. Her greatest enemies will be compelled to admit that she has scored a distinct success not only in the matter of diplomacy, but also in the field of international ethics. It is now to be sincerely trusted that a new era of mutual friendship and trust will dawn for the sister Empires."

THE RAVAGES OF WHITE ANT.

The white ant is the enemy of all wood construction in the Far East where it seems to thrive more lustily than in any other part of the world. Not only has it attacked buildings but the rubber plantations of Malaya have suffered from continued ravages. The report on this subject by Colonel Wyllie, the Burma rubber expert, is of special interest at this time when the prospect for rubber is so bright. The *Times of Ceylon* says:

"Col. Wyllie has just come from the F.M.S., where he has been seeing some of the oldest planted rubber in that country. He takes a very grave view of the ravages of white ants there, and was much surprised at the extent of the damage done by them. The alarming feature of this pest, according to the Colonel, is that it generally confines its attention to the matured trees. The ants work entirely from below getting into the tap root and working up the trunk. In Rangoon, where the white-ant also carries on its depredations, it works on the outside, building up mounds round the foot of the tree. There it is at once seen, and by digging them up and putting in ashes and other materials the tree is saved. In the F. M. S. it is entirely different. It is almost impossible to tell when white ants are at work on a tree until the damage is done and the tree collapses. It was a sad sight to see, in the vicinity of Taiping, magnificent trees, some as many as twenty years old, absolutely destroyed in this manner. Lieut.-Col. Wyllie did not wish to generalize by his own brief observations, but it appeared to him that, unless some effective means of eradicating the pest was discovered, the F. M. S. would always have young rubber, as a large percentage of the old trees were constantly being destroyed by *Termes Gestroi*."

From the Philippines comes information that the white ant has almost destroyed several public buildings, or so damaged them that they are placed in the dangerous column. True the permanent type of construction, in which reinforced concrete is used, is exempt from these ravages but the old Spanish buildings are seriously exposed. Similar reports are being received from the Straits Settlements and other points in the Orient and the losses due to this pest cannot be estimated since it works quietly and when the damage is discovered, it is usually beyond repair.

In many offices it has become necessary to place metal filing cases and other office furniture in order to properly preserve records, but there is every reason to believe that if proper preventative measures are taken, the white ant may be successfully combatted.

The danger to the rubber industry is apparently of a serious character, but we note that the Government of the F. M. S. has taken steps through the Agricultural Department to instruct the planters as to the best means of fighting the pest by a series of lectures on the subject.

INTERPORT CRICKET

Mr. J W. Bain, sub-editor of the *Shanghai Times*, the wellk-nown journalist and writer on athletics, is the author of an interesting review of Interport Cricket covering the period from 1866 to 1908 in Shanghai, Hongkong, and Singapore where continued interest has been shown in this most popular of British games. The volume contains a short description of each match and we are certain will be of great interest to all lovers of the sport. The author announces that the edition is limited and will appear October 1st. The price is $1 50.

PHILIPPINE LUMBER FOR LONDON

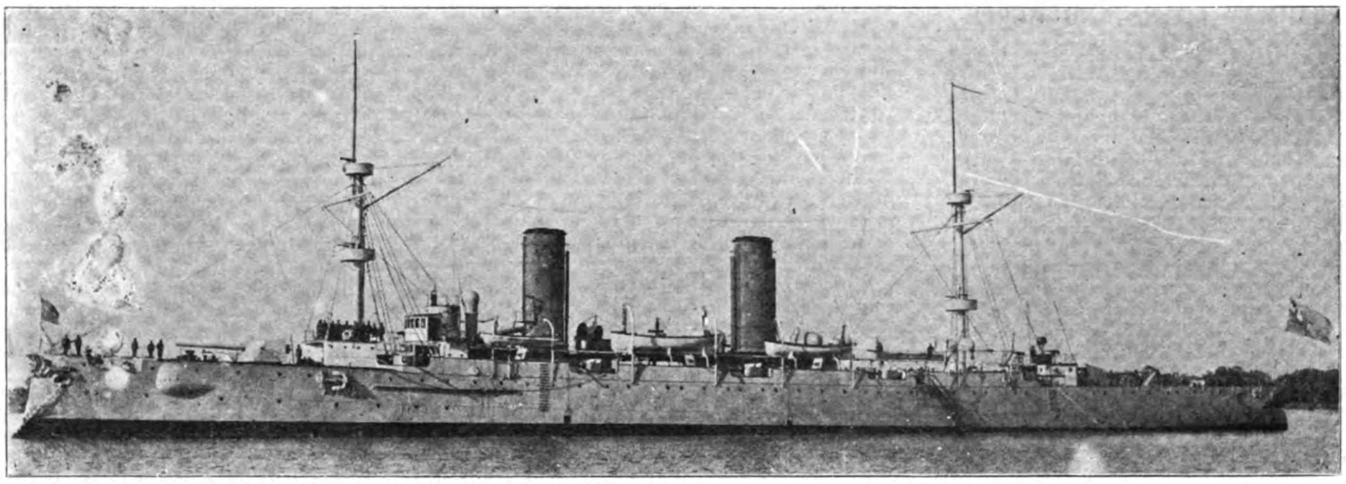
The lumbering industry in Mindanao is flourishing as is shown by the report of internal revenue collected for the fiscal year ended June 30th, 1909, on 5,649,894 board feet and valued at ₱457,584.36, easily the leading product of the Moro Province. In addition to this comes the information that the Port Banga Lumber Company has loaded a cargo of hardwood at their mill at Port Banga on the N. D. L. Steamer *Tringganu* destined for the London market. This is the first full cargo of Philippine hardwood shipped from the islands to this market. The demand is growing for these woods and it would seem that Mindanao is getting its share in reward for well directed effort and enterprise.

CHINESE NAVAL REORGANIZATION

(FROM OUR OWN CORRESPONDENT)

SHANGHAI, September 1st, 1909.

Of the many reforms proposed by the authorities in Peking, the reorganization of the present obsolete war vessels and acquisition of a formidable navy is easily far ahead of any other project in its bearing on China's future, and leads all others in the expenditure of funds. It is becoming clearly evident that China is earnestly pushing forward her programme of military expansion, and at the same time her army is being organized and brought up to a war footing; the naval advance is to keep pace, and at a given time, seven years hence, the two arms of the service will have reached that degree of proficiency and strength, planned by Yuan Shih-kai. Then with a modern drilled army under capable officers, and a moderate navy, China will be in the long desired position to maintain a semblance of national dignity in the face of foreign aggressions. For it is not to be doubted that the military spirit has taken hold of China, and with a new generation in power, having the example of Japan ever before them, the dream of military glory has taken firm root in the minds of the younger men. For ages the greatest ambition of the Chinese boy was to attain the rank of Governor of a Province. The change that is taking place in the minds of the youth is best exemplified by the response of a son of one of the highest Peking officials, who, whenasked what he desired to be when a man, quickly answered, "A general in the Army." And so the military and naval spirit is growing, and with it a yearning to pay off some old scores against those who have humiliated the Empire in the past. The army reorganization is proceeding as rapidly as funds can be provided to arm and equip new troops, and orders are constantly being issued from Peking urging the Viceroys and Governors to make haste and form the Divisions or Regiments allotted to their provinces. In the most important provinces, foreigners have been able to keep fully advised as to the progress made with the new army, but in the remote border provinces this information has been difficult to secure.



THE FLAGSHIP OF THE CHINESE NAVY

H. I. C. M.'s Ship *HAI-CHI.* Protected Cruiser; Displacement, 4,300 tons; I. H. P. 17,000; Speed, 22.5 Knots. Armament: 2 8-in. Quick Firing Guns, 10 4.7 Q., 22 secondary guns. 5 Torpedo Tubes. Built 1898 at Elswick.

THE ARMY IN KANSU.

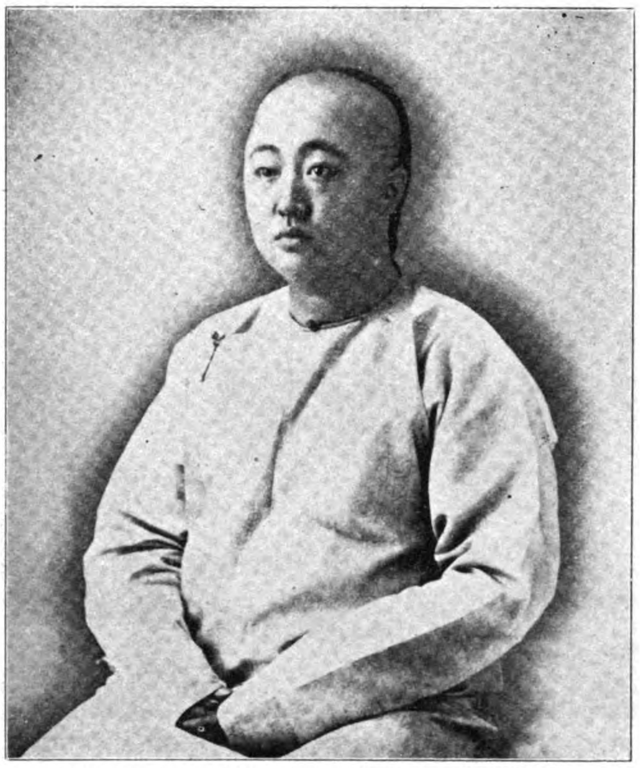
It is generally conceded that the best fighters in China are found in the wild border province of Kansu, and the contiguous Mongolian territory. This almost unknown and forbidden land still shelters the banished Boxer leader, Prince Tuan, and gave refuge to Tung-fu-hsian and other rabid Boxer generals, after the collapse of the 1900 movement. It is therefore interesting to read the narrative of the American explorer who ercently followed the Great Wall of China to its furthermost extremity. He states that in every village and most insignificant hamlet in Kansu his attention was drawn to the squads of natives undergoing military drill, following some well directed plan. This in itself is significant, as such a noticeable programme is not in evidence in other provinces where foreigners can observe it, and if we remember aright, the publication of this obscure news item, was followed shortly afterwards by an order from Peking, prohibiting missionaries or travellers from penetrating into these regions. It was only a month or so later when the report came from Peking, that H. E. Tieh Liang petitioned to be relieved of his post as Minister of War, and appointed to the Viceroyalty of the Shen-kan provinces, to *supervise the organization of the army there.* That one of the most powerful Ministers of the Government should volunteer to relinquish the practical command of the entire army, and abandon the joys of Peking for the comparative hardships of a frontier post, for the sake of drilling the Kansu troops, is an indication that the Kansu army is of some importance, or Tieh Liang would not solicit a post lower in rank, unless as reported he had lost favor at Court. Even after this request had been refused by the Regent, we hear that Tieh Liang is still anxious to inspect the Kansu troops and proposes to take with him two battalions of the Chihli modern drilled cavalry as his escort. All this may have some significance, or may be only coincidence, but it points to the fact that China is earnestly preparing to defend herself, and if these Kansu reports are true, she is closely guarding her military secrets.

VALUE OF PEKING NEWS.

The utter impossibility of gathering reliable news in Peking has led to the publication of many conflicting reports not only about the Army and Navy, but other official matters. The walls of the Forbidden City effectively protect the high official from the news gatherer, whether native or foreign, and interviewing the President of a Board is a rare privilege. Peking news by the time it reaches the newspapers through several minor officials or yamen servants is stripped of its news value and reduced to rumor, and so the world has been treated to a choice collection of conflicting reports about the reorganization of a Navy for China, with all the trimmings of Dreadnoughts, ordinary battleships, cruisers, torpedo boats, docks, arsenals, wireless telegraphy stations, and everything which a first class Power should possess in this line. The disjointed native news paragraphs on this subject make interesting reading, but it is difficult to accept a serious view of the much advertised reform. Behind the grandiose schemes and dreams of Dreadnoughts and Celestial Togos arises the specter of Finance. Where is the money to come from? Docks, colleges, equipment and recruiting stations require millions before ships are purchased, and millions are necessary for maintenance. With the present visible resources of the Imperial Government any large scheme is impracticable unless financial reform is hastened, or fresh burdens of taxation imposed on the long suffering patient Empire.

CHINA'S FINANCES.

The financial condition of the Empire is a long way from being satisfactory, and funds are needed for the most pressing public improvements and urgent reforms. The progress of the country is virtually checked pending a reorganization of the financial system. Despite her present impoverished condition, the natural sources of the Empire's wealth are practically untouched, and with a fairly honest administration of revenues, the receipts of the government would be greatly increased. Where funds for the navy in any large amounts are to be derived from, is a mystery. There exists throughout the provinces an almost unanimous sentiment against the floating of further foreign loans for unproductive expenditure, and even for railway construction there is a well defined antagonism in many provinces against the use of foreign loans. The anti-foreign movement now rampant throughout the length and breadth of the Empire has for its object the elimination of the few existing foreign industries and a recovery of concessions, so there is little chance of the government securing revenue through the development of natural resources by foreign capital. Native investors refuse to finance any large enterprise for fear of official rapacity, so there is little hope from this quarter. Every scheme of legitimate taxation is worked to the limit, and every irregular method of squeezing money from trade and individuals reduced to a science. Loans are issued and new loans entered into to pay off the old ones. Financial stringency is eased by shouldering new obligations, and any temporary expedient for raising funds is eagerly accepted by the provincial authorities, pledging in return every available revenue as security. It is a constant shuffle, robbing Peter to pay Paul, to make the ends meet, and little heed is apparently given to the day of reckoning. After the provincial

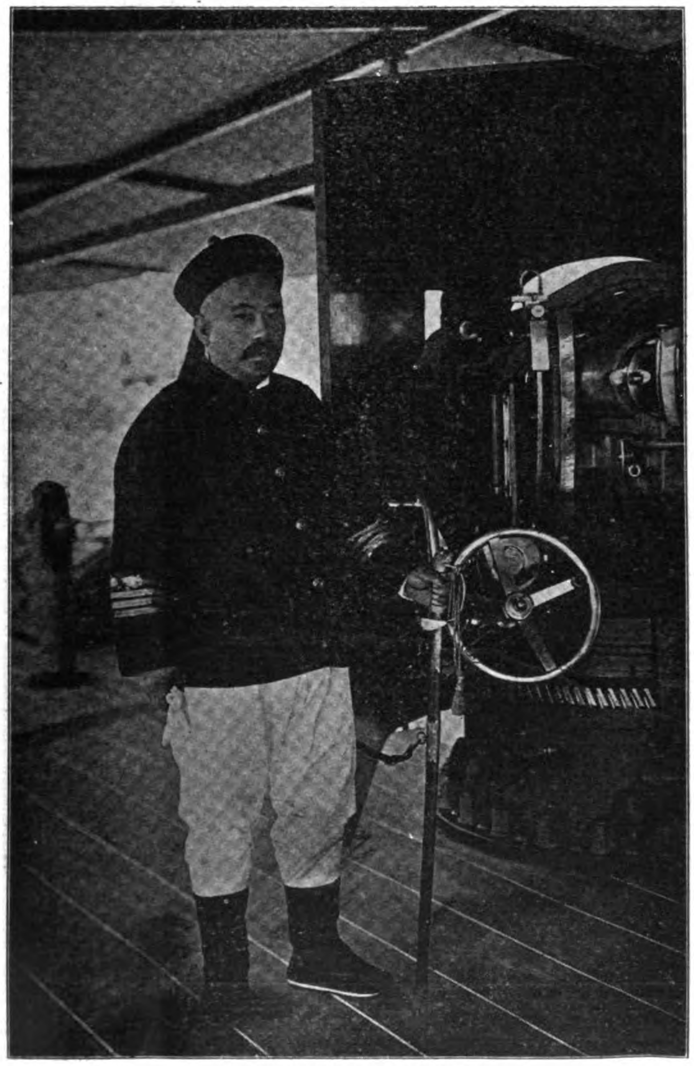


His Imperial Highness, Prince TSAI-HSUN
HEAD OF THE NEW NAVAL BOARD

expenditures are cared for, follows the tribute to Peking, which never diminishes. The gratuities to those higher up must be paid, and the private fortunes of the provincial officials maintained and added to, against the day when promotion is desired. Instead of sending more money to Peking, the Viceroys and Governors are all pleading poverty. The establishment of important reforms is delayed and postponed for lack of sufficient funds to carry them out, and we find the old order gradually changing, and the Central Government compelled to appropriate large amounts towards the expense of implanting new schemes in the provinces. The new Viceroy of Yunnan practically refused to accept the post unless Peking contributed towards the expense of creating the modern Army Corps for that province; the Viceroy of Manchuria has sent in several urgent appeals for financial assistance, and so it is all along the line. The provincial authorities are relying to a large extent on irregular levies for the upkeep of their private fortunes, and bitterly resent and oppose any proposed scheme of legitimate taxation interfering with their private perquisites.

FACING A DEFICIT

And so to get down to figures we find that of an estimated Imperial revenue of about $60,000,000 gold derived from foreign customs, railway earnings and provincial remittances, the foreign loan and indemnity service absorbs approximately $37,000,000 leaving about $33,000,000 for current expenses of the Imperial Government, including the Palace and the eleven Ministries or Metropolitan Boards.



NAVAL OFFICER IN UNIFORM

ADMIRAL SAH
IN THE OLD REGULATION UNIFORM

But now comes the latest report from Peking that there is a deficit of 17,000,000 Taels or say $10,000,000 at the present time, and immediately follows the astounding notice that the Government has decided to organize a fleet of ten men-of-war at a cost of 400,000,000 Taels (or $240,000,000) and this scheme will be carried out *in spite of the want of means.* The finances of the Empire are in a deplorable condition, and will grow worse instead of improving, unless a change comes over the people and real reforms are instituted and foreign capital invited to develop the enormous natural wealth of the Empire.

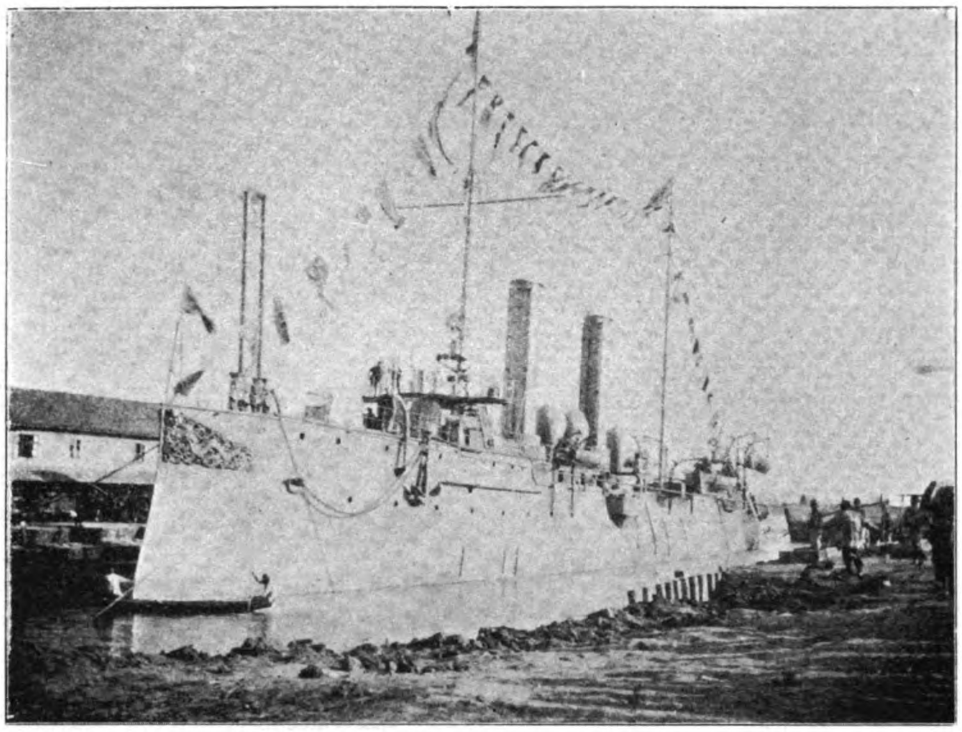
FINANCIAL REFORM

Financial reform has been initiated, but the future holds out little hope for success. The basic principle of the present policy is the centralization of the loan making power. All provincial and metropolitan loans must be sanctioned by the Board of Revenue and approved by the Board of Foreign Affairs. But the provinces refuse to accept the right of the central authority to intervene in their affairs, as instanced in the case of the Shanghai-Hangchow-Ningpo Railway loan, and foreign capital is not secure without the Imperial guarantee. Provincial loans for railway construction in Kiangsu and Anhui in which foreign capital was ready to accept provincial guarantees were refused sanction from Peking, and a solution to the tangle has not yet been found.

A start has been made to nationalize the currency, and bank note experts brought out from America and a printing plant ordered. Studies have been made of foreign financial systems, but the official who conducted the investigations and submitted the report is relegated to a back seat, and his report pigeon holed. Edicts have been issued to submit budgets in 1910, and in 1912 full financial reports of receipts and expenditure must be forwarded to Peking.

An Imperial auditor's department has been created under the direction of the Revenue Board, and a deputy detailed to each province to supervise accounts, but under the prevailing system of appointments this is only another opportunity to find posts for favorites, and the question arises, Who will audit the auditors? With a Board of Revenue supervised by an Imperial Duke, and a set of subordinates lacking experience in intricate financial affairs, the outlook for reform is not particularly bright.

The question naturally arises, where in her impoverished financial conditions is China to raise the enormous sum of $240,000,000 gold? The borrowing power of the Empire, guaranteed by her present available assets, will not exceed $50,000,000 at the most liberal estimate. It would appear unless other sources of revenue were brought to light and a commission of foreign creditors appointed to supervise the finances, there is little hope of any level-headed investor purchasing bonds for the furtherance of a naval scheme.



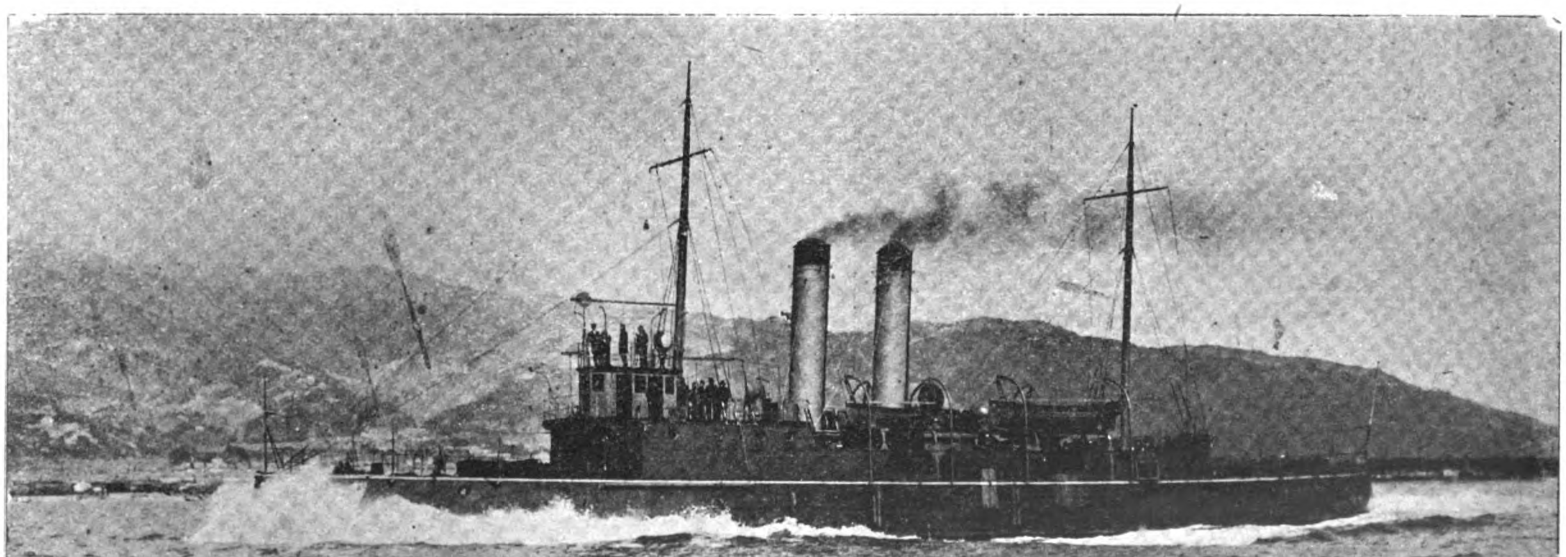
H. I. C. M.'S TORPEDO GUNBOAT "KIEN-GNAN"
The Kien Wei and Kien-Gnan were built at Foochow Arsenal, 1900. Displacement: 817 Tons. I. H. P. 7,000; 23 Knots. Engines and Boilers made in France. Armament one 3.9 forward, 3 9-pounders and 6 one-pounders, 2 torpedo tubes

LARGE NAVY UNNECESSARY

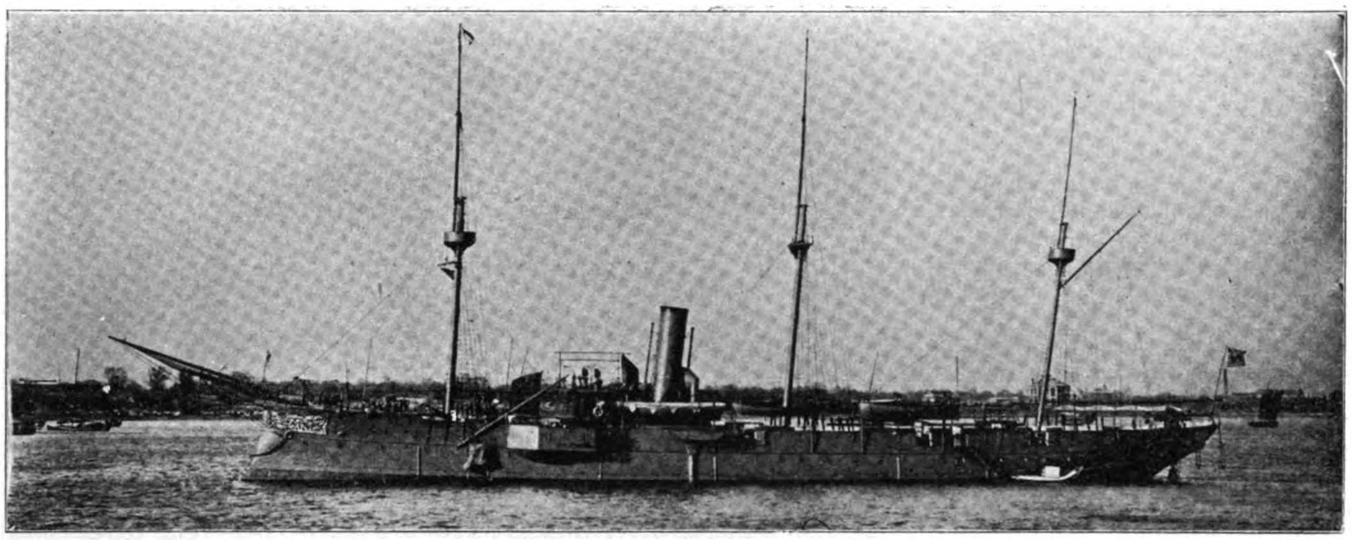
If the creation of a navy was the only pressing need of China to-day, a fair start might be made, but with an equally urgent demand for an army, new railways, schools, waterways, and many other drains on the treasury, a large navy becomes a luxury, and an incentive for some more powerful neighbor to acquire new ships at bargain counter prices. The agitation for a large navy follows the growth of the new born national sentiment and desire to be on an equal footing with the foreigner, but in reality the need for such a fleet does not exist. A navy sufficiently large to patrol the coast and rivers and effectively police the trade routes, and guarantee safety against practical attacks should receive the first serious attention of the government. When foreign men-of-war are obliged to guard their national interests by policing the rivers and deltas of the Empire, owing to the utter helplessness and incapacity of the native police launches, the talk of battleships is premature. The intimacy between the subordinate naval officials and the pirates of the Canton delta renders impossible effective police work by native patrol boats, and compels British and foreign gunboats to remain constantly on duty.

REORGANIZATION SCHEME

In spite of all this China has set her heart on a new navy, and the Regent has given his indorsement to the plan, by creating a commission of reorganization, and approving their findings. Early last February he appointed Duke Tsai Tse, President of the Board of Finance,



H. I. C. M.'S RIVER GUNBOAT "KIANG-YUAN"
Built at Kobe, 1905, by the Kawasaki Dockyard Company for the Viceroy of the Liang Kiang at Nanking. Displacement: 565 Tons; I. H. P., 487; Speed 14.8 on trial.—One 4.7 quick firing gun, one 3-in. and 4 3-pounders; 4 maxims



H. I. C. M.'S CRUISER "NAN-SENG."
Built at Howaldt, Kiel, 1883. Displacement 2200 tons. I. H. P. 2400, 14·2 knots. 2 8-in. Breech-Loaders, 12 Secondary Guns. 1 Torpedo Tube.

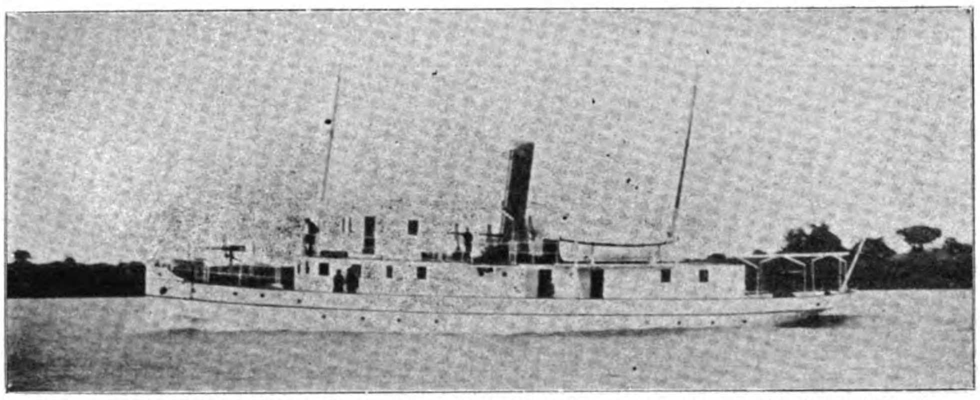
YANGTSZE RIVER PIRATE CHASER, BUILT BY THE KIANGNAN DOCK & ENGINEERING WORKS FOR THE VICEROY OF NANKING

Prince Su, President of the Board of Interior, Tieh-Liang, President of the Army Board, and Admiral Sah, the Commander-in-Chief of the Peiyang and Nanyang squadrons, to formulate plans for the new navy. In the above officials the Regent selected the best talent available in China for such an important task, for although only one member of the Board has any real knowledge of such matters, the others, through their position in the Ministry, would have to lend their support and co-operation to any real scheme of reform. Of course, the first step was to have Admiral Sah proceed to Peking and initiate the others into the rudiments of naval knowledge, and his undoubted ability is so far responsible for the progress made. The primary result following the creation of this commission was the centralization of naval power into the hands of the Imperial Government, severing at one stroke the independence of the Viceroys, and control over their fleets which in the past has led to their refusal to dispatch aid to one another in times of national need. Heretofore the Imperial Chinese Navy has been under the control of the four great coast viceroys at Tientsin, Nanking, Foochow, and Canton, and the funds appropriated for maintenance divided amongst them.

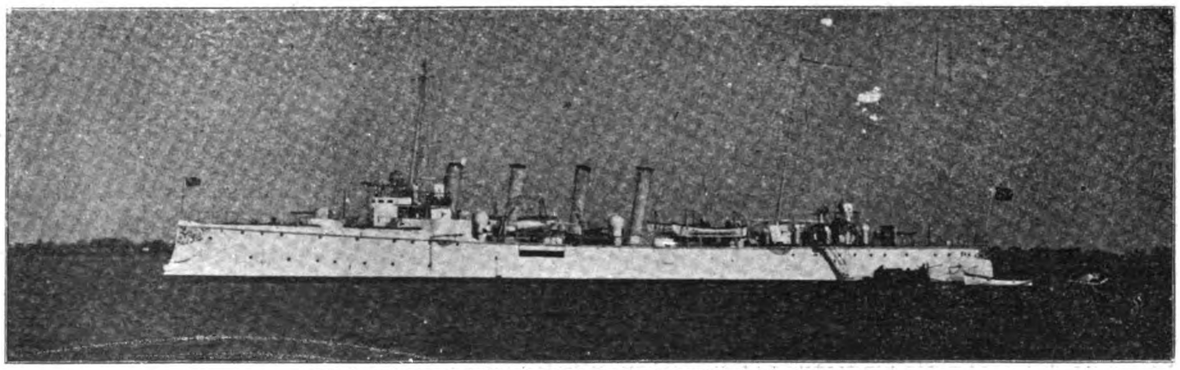
The first rough reorganization scheme, recently approved by the Throne, abolished this antiquated system of four naval sections, and centered control in a Naval and Military Advisory Board, as outlined by the following edict:

IMPERIAL DECREE

(Edicts were written in vermilion.)—Peking, July 15, 1909.—In the Outlines of Constitution presented sometime ago by the Commission of Constitutional Reform it was set forth that the



LIAO RIVER GUNBOAT BUILT FOR THE VICEROY OF MANCHURIA BY THE KIANGNAN DOCK & ENGINEERING WORKS



H. I. C. M.'S TORPEDO GUNBOAT "FUI-YING."
Built by the Vulcan Works at Stettin, Germany, 1897, for the Chinese Government through Arnhold, Karberg & Co. Displacement 850 tons. I. H. P. 5500, speed 22 knots. Armament: two 4-in. Krupp's 6 6-Pounders and 2 1-Pounders, 3 14-inch Torpedo Tubes.

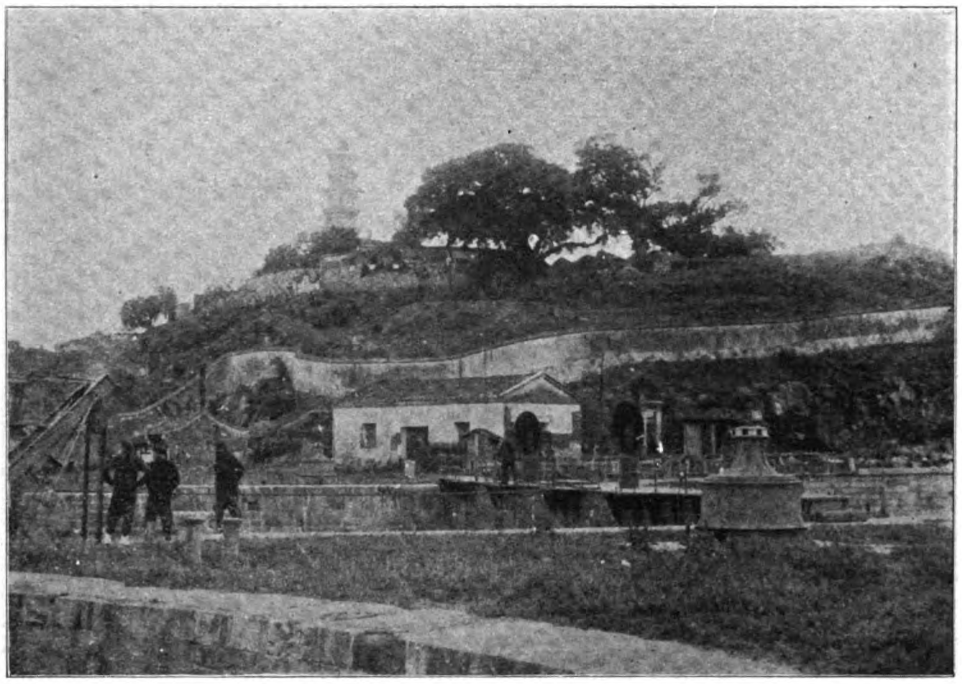
supreme command of the Army and Navy should be vested in the authority above. This rule was enacted by Edict in the last reign, in obedience to which We now announce that We will be Generalissimo of the Army and Navy of the Chinese Empire, as laid down in the Outlines of Constitution, and following the example of our Imperial ancestors in holding personal command over the six armies when they obtained possession of the Imperial heritage. By this We seek to encourage a military spirit among the soldiers.

We hereby command the formation of an Army Advisory Board to assist Us in managing military and naval matters in the Empire. Yu Lang, Prince of the 3rd Order, is commanded ot be in charge of the board. As We are in youthful years and are being educated, but have not personally attended to state affairs, all our powers and responsibilities as Generalissimo of the Army and Navy shall, temporarily and before Our assuming the reins of Government, be invested in the Prince Regent.

The Army Advisory Board is commanded to report to Us and ask permission to carry out all necessary measures.

As Prince Yu Lang (3rd Order) has been appointed in charge of the Army Advisory Board, Tsai Fu, Imperial Noble, ninth in line of descent, is hereby appointed commissioner to train the Imperial Guard Corps, and Prince Yu Lang is relieved of the post.

Prince Tsai Hsun (3rd Order) and Admiral Sah Chen-ping are hereby appointed Commissioners to devise means for the Navy Organization until further orders, and until some success has been attained. A copy of the memorial on elementary measures to be adopted and requesting the appointment of other Commissioners, presented by the Commissioners appointed to form a nucleus for the Navy, is ordered to be made for the Commissioners now appointed.



THE USELESS DRYDOCK AT FOOCHOW

Located at Pagoda Anchorage a mile distant from the Arsenal. Its entrance is silted up and has to be dredged to permit of docking a ship

The above Edict was sealed by the Prince Regent and signed by the Grand Councillors Prince Ching, Shih Hsu, Chang Chih-tung, and Lu Ch'uan-lin.

H. I. H. PRINCE TSAI HSUN

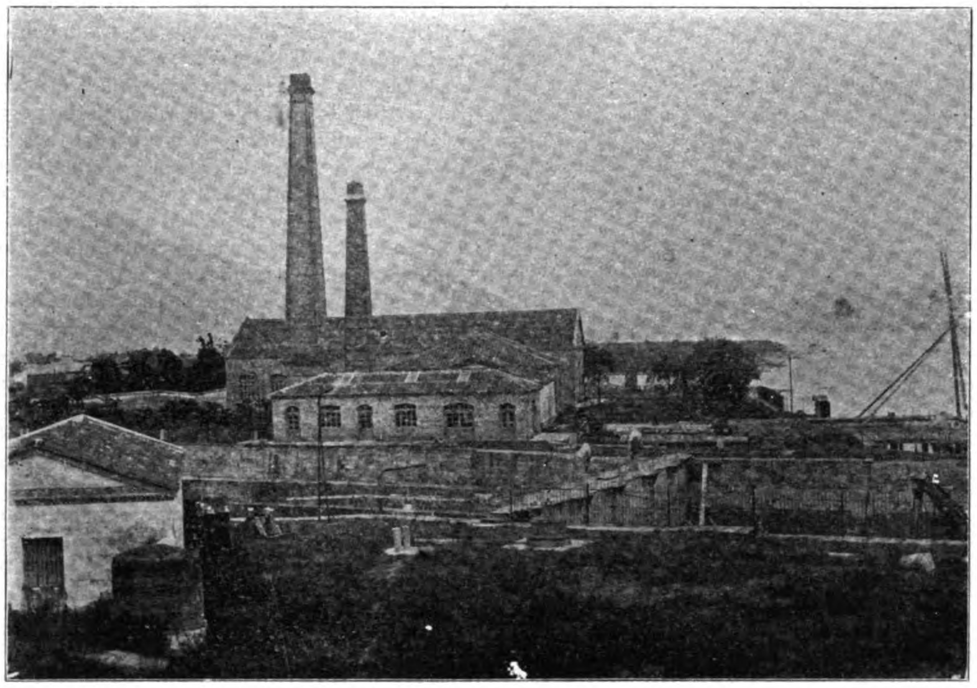
Following the Regent's new programme the supreme command of the Navy is vested in the Emperor, with a powerful Prince as the Imperial representative and the best naval officer in the Empire as the real directing force. H. I. H. Prince Tsai-Hsun is a younger brother to the Regent, and has absolutely no experience in military or naval affairs, but his appointment is justified by the Regent's desire to have the Manchu princes of the blood assume a share in the government, and take an interest in the preservation of the dynasty. The announcement is now made that Prince Tsai Hsun will shortly start on a visit to foreign countries to learn something about naval affairs, or in other words to gather ideas and dispel the traditional air of exclusiveness in which he and other of the Princes have moved. It is not expected that Tsai Hsun will return a full baked admiral, but as he is highly intelligent and a keen observer, the trip will open his eyes, so he will see things in the same light as the Regent and Princes Tsai Chen, Tsai Fu, and Pu-lun, who have been broadened by foreign travel.

THE ADMIRAL OF THE CHINESE NAVY

In Admiral Sah (Sa Chen-ping) rests China's hope of real naval reform and reorganization No official in China is better equipped for this important duty, and if his advice is followed there is no doubt of practical results. Admiral Sah is a native of Foochow and received his first education in the Naval School at that port, and afterwards completed his training in the British Navy. A course of study at Greenwich Naval College was followed by actual service in the British Navy. Entering the Chinese Navy as a Junior Officer, through his marked ability and devotion to duty, he has risen through the different grades to the highest command. He commanded the cruiser "Tieh-yuen" at the Battle of the Yalu, and after the death of Admiral Yeh was advanced to the vacancy. In 1903 he was ordered to the command of the Pei-yang or Northern Squadron, and in 1905 Admiral of Kwangtung, and Commander-in-Chief of the Land and Sea Forces in 1906. The land command was withdrawn in January 1908, leaving him free to concentrate his attention to his particular sphere of usefulness.

ROTTING AWAY FROM NEGLECT AND DISUSE

Chinese Imperial Arsenal and Mint at Foochow. Erected and managed by French Engineers, equipped throughout with French Machinery. A Yangtsze river steamer on the ways under construction.



THE FOOCHOW DRYDOCK.—DOCK ENTRANCE AND PUMP HOUSE

THE PRESENT NAVY.

The existing navy of China consists of three squadrons, the Peiyang with Taku or Chefoo as bases, the Nanyang at Nanking or Shanghai, and the Kuangtung at Canton. In all there are only about twenty serviceable ships, the displacement of the largest being 4,000 tons. The Commission of Reorganization recommended that four cruisers, 16 torpedo boats, ten Yangtze River gunboats, 21 coast patrol vessels and 4 training ships should be regarded as in commission at present, and if found serviceable, after inspection, to be carried on the active list as the nucleus of the new navy.

Nine of these gunboats were constructed at the Kawasaki Dockyard at Kobe at a cost of $2,500,000 gold, six to the order of the Hukwang Viceroy at Wuchang, and three for the Nanking Viceroy. Four second class torpedo boats were also built for the former Viceroy.

China controls four dockyards and arsenals at Taku, Shanghai, Foochow, and Whampoa near Canton. The most important is the Kiangnan at Shanghai. In the reorganization of these arsenals it is proposed to fully equip and bring the works up-to-date and permit outside mercantile work for the docking and repair of merchant vessels to help defray expenses, as is now practiced at Kiangnan.

PLANS FOR THE FUTURE.

A naval base will be established at Nimrod Sound on the coast, south of Shanghai, a favorite place for the target practice of foreign war vessels. A gunnery school will also be located there. Four naval schools will be established. The present school in the Whampoa Dockyard will be converted into an engineering college for 300 students, the naval school at Chefoo into an imperial navigation college for 320 students, and the school at the Foochow arsenal and dockyard into a shipbuilding college for 200 students. In addition a naval academy or war college is to be located at Peking in which officers will be taught the higher science of naval warfare. The torpedo gunnery and general training school is to be located at Hsiangshan, Chekiang, on Nimrod Sound. The present naval schools in Nanking and Tientsin will also be included in the scheme, the curriculum enlarged and number of students increased. The base in Nimrod Sound is to be fortified and wireless telegraphy installed to connect the forts along the coast.

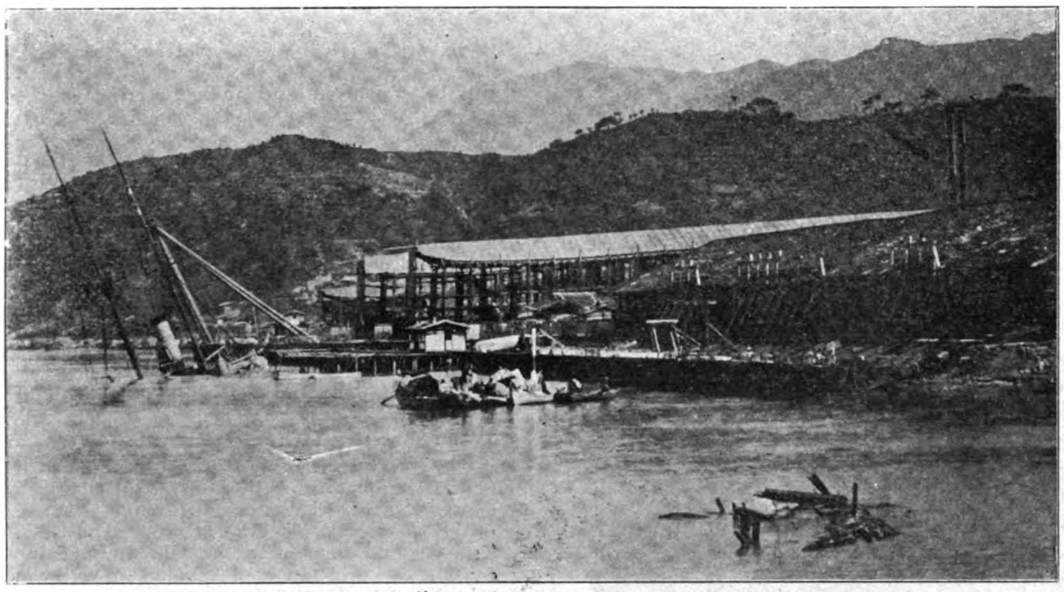
The increase of the fleet is also recommended and at the same time other important measures are advocated. The impracticability of some of the schemes proposed by Prince Su and Duke Tsai Tze and opposed by the Admiral, creating considerable difference of opinion, have been solved by the Regent appointing Admiral Sah to the Presidency of the new Admiralty Board, and leaving the technical matters entirely in his hands.

It appears that Grand Councillor Chang Chih-Tung has opposed the appointment of the young and inexperienced Princes to the highest commands of the Army and Navy, and in so doing incurred the resentment of the Regent. His continued sick leave is said to be attributable to this clash with the young ruler, and presages his complete retirement at an early date.

The chaotic state of naval affairs in China can be appreciated from the fact that the first step of the new Board was to ascertain the exact number of existing men-of-war and vessels. It hardly seems possible that after some months of deliberation in Peking the government was ignorant of the number of ships controlled by the Viceroys, yet this is apparently the case, though it undoubtedly refers to the large number of smaller craft doing police duty on the rivers.

According to the programme drawn up and sanctioned by the Throne the work is to be spread over seven years, beginning from the present year. A Navy Council will be created

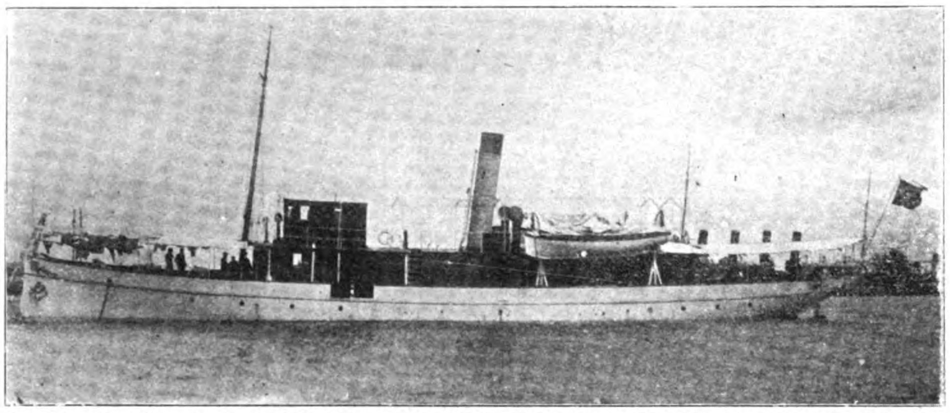
THE FOOCHOW ARSENAL.—THE RIVER FRONT LOOKING TOWARDS PAGODA ANCHORAGE



A SCENE OF "ACTIVITY," THE VACANT BERTHS AT FOOCHOW ARSENAL

in Peking to consist of the Presidents of the Boards of War, Interior and Finance, besides the Navy Commissioners, Prince Tsai Hsun and Admiral Sah Chen-ping. The Viceroys of Chihli, Liang Kiang, Hu-kuang, Min-che, Liang-kuang and Manchuria will also be included in the Council.

For the first year's work account will be taken of all the present ships, and orders will be given for the construction of 2nd, 3rd and 4th class cruisers. Naval bases for the Northern, Southern, Fukien and Kuangtung waters will be inspected, and the naval schools at Tientsin, Nanking, and in Fukien and Kuangtung will be expanded. Steps will also be taken to re-organize the different dockyards.



RIVER PATROL BOAT BUILT FOR THE SZECHUAN VICEROY BY THE KIANGNAN DOCK AND ENGINEERING WORKS

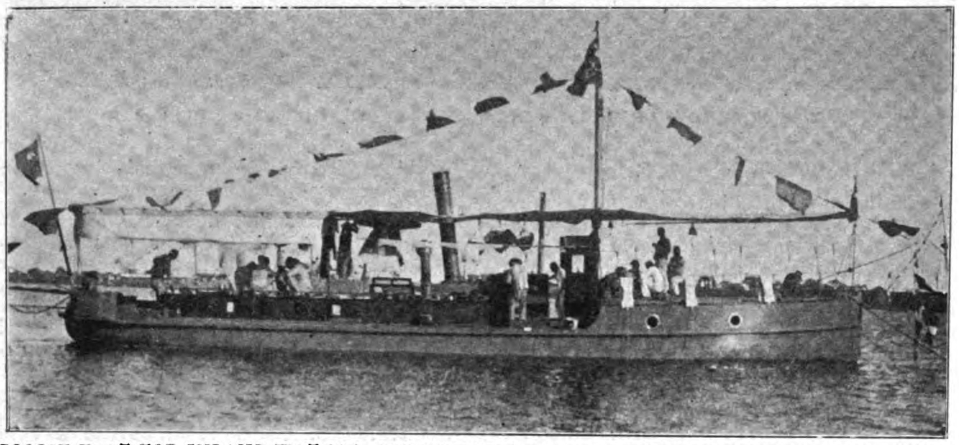
In the second year the following measures are to be carried out:—Formation of fleets; construction of 3rd class cruisers, transports, torpedo-boats and destroyers; construction of naval and gunnery schools; preparation of a naval budget and division of territory into districts for recruiting marines.

Between the third and the seventh years the Government will build eight first class battleships, about twenty cruisers, ten gunboats and three flotillas of torpedo boats. Distribution of squadrons will take place, naval bases will be completed and transport arrangements carried out. Over and above these measures the Government will recruit a force of marines, create an Admiralty Board, establish a new naval academy and take such other steps as may be necessary from time to time.

SELECTION OF OFFICERS

It is proposed to select the sons of high Manchu officials attending the Noble's School at Peking, and send them to the naval colleges at Nanking and Tientsin for a preliminary course of study preparatory to a foreign education in the navies of the friendly powers. It is reported that the Chinese Government has already arranged with the British authorities to train the cadets on board British warships, and that permission has been granted by the Regent to select one hundred students at once.

All officers, who have served in the Chinese navy, will be returned to duty, after undergoing certain examinations. The Viceroys have been ordered to send in reports recommending such men for reinstatement. The absence of competent native officers to train the men for the new navy and command the ships is a factor in the scheme occupying the serious attention of the authorities. Students are now being educated in England, France, and Germany, and a request has been made to have the



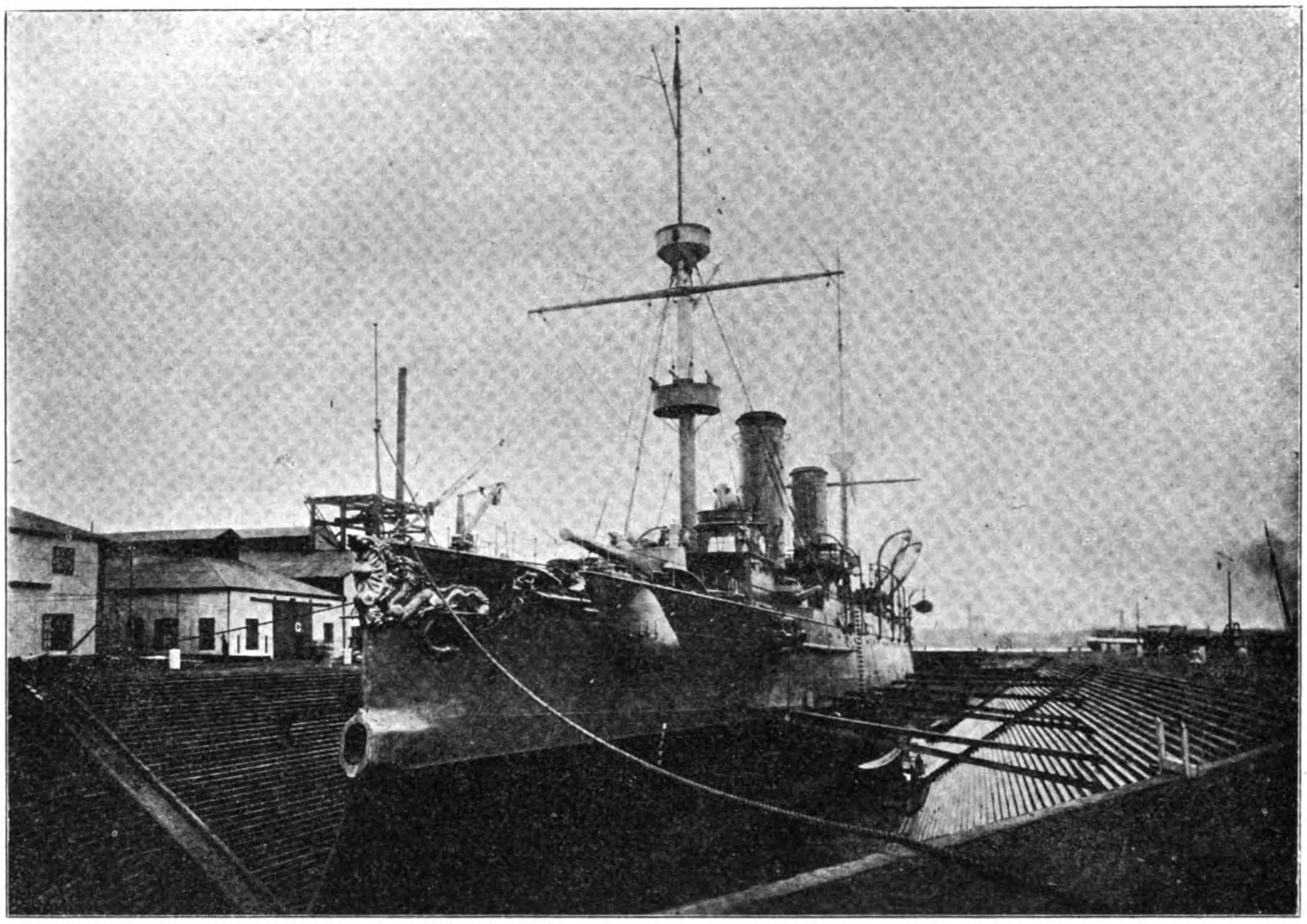
POLICE BOAT FOR INLAND WATERS, BUILT BY THE KIANGNAN DOCK & ENGINEERING WORKS FOR THE NANKING VICEROY

number increased. Prince Hsien Chang, the son of Prince Su, is pursuing naval studies in Germany, and other graduates of the Noble's School at Peking are to be sent to Europe for the same purpose. Whether the naval academies of Europe and America will be as freely opened to China as they were to Japan is problematical, for there is a tendency to discontinue such courtesies.

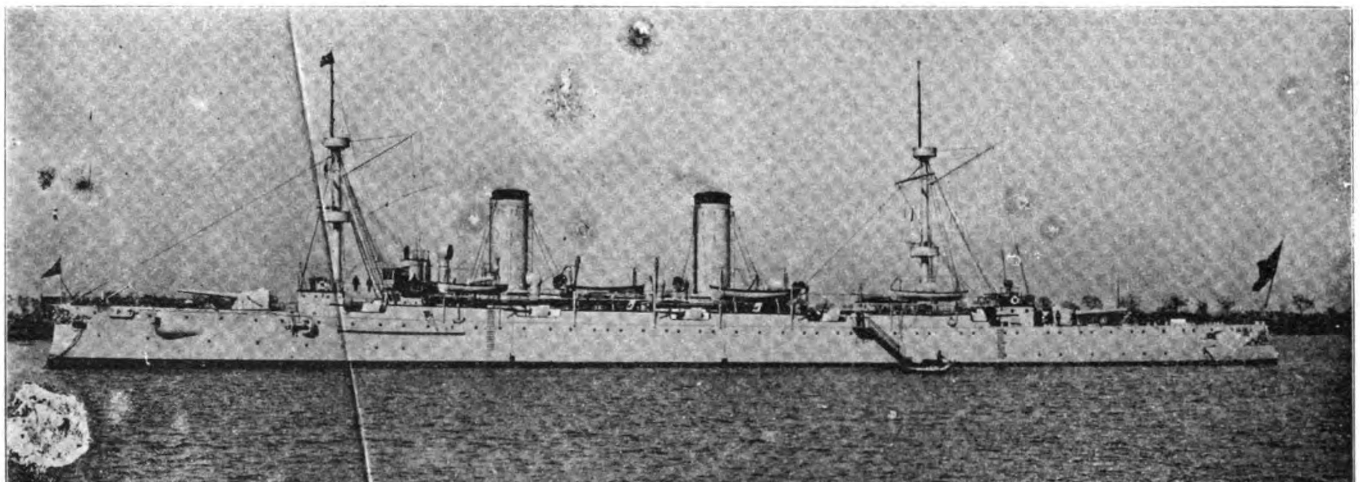
The escapade of a Chinese naval pupil on board the French training ship Borda who decamped to Belgium with papers stolen from an officer's cabin, has served to intensify the dislike of French officers to the admission of foreign cadets to the training ships. There is a revulsion of feeling in France at least to this

THE PEACEFUL QUIET AT FOOCHOW ARSENAL

system, and the officers are complaining that after educating the Japanese they are now expected to teach the Chinese. The recent incident of a Chinese military student in Japan who acquired the mobilization plans of the regiment and other valuable information, led to the summary dismissal of all Chinese students from the army. The order, it appears, was subsequently rescinded. While these examples are on a par with methods employed by some regularly accredited military attaches of other nations who have reduced the art of securing information to a science, foreign governments are beginning to be a little more exclusive in extending courtesies of this nature.



The HAI-CHI in the "OLD DOCK" of the Shanghai Dock & Engineering Co., Ltd.

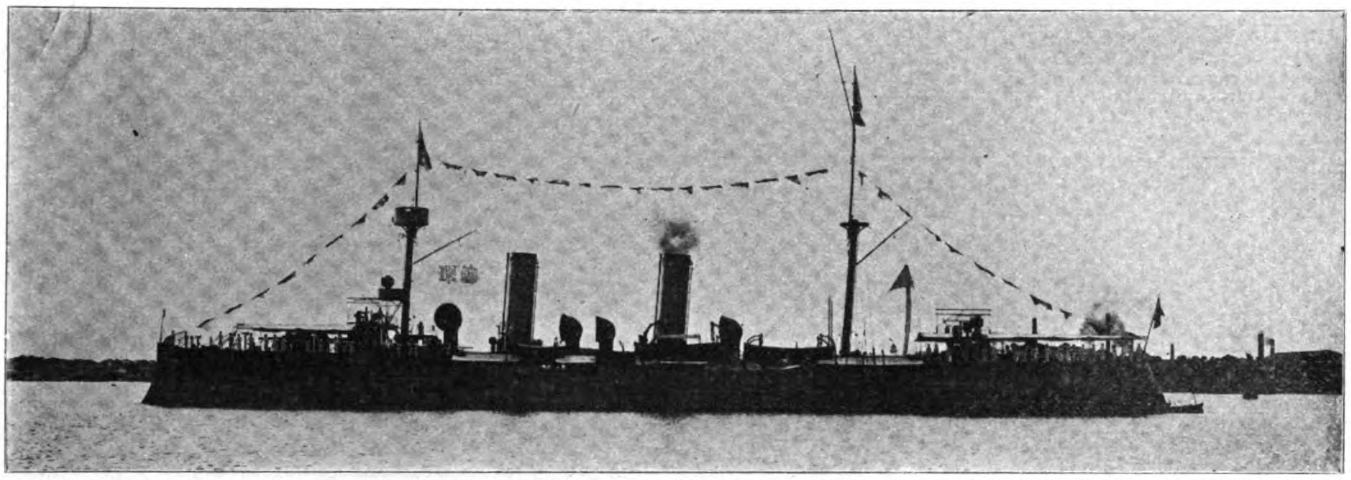


The "HAI-TIEN," Sister Ship of the "Hai-Chi," wrecked on the Saddle Rocks, off Shanghai

DESPERATE FINANCIAL SITUATION

Of course the all-important part of the scheme is to raise the funds. And as already pointed out every cash of revenue entering Peking has a capacious maw open to receive it. The desperate straights of the government to raise funds for the navy programme are fully disclosed by the many proposed schemes for this purpose.

The late Viceroy Yang of Chihli, by discharging unnecessary officials, saved about $210,000 in salaries and arranged to have the amount sent to Peking for naval extension. The Regent after consultation with the Grand Council and Minister of the Treasury decided that by economising the expenses of the Imperial household and other Yamens in Peking a saving of $3,600,000 could be made, and the following measures were also proposed: increase in the taxes on land, tobacco, spirits, sugar and houses, to award honorary titles in return for voluntary contributions, to raise a loan from Chinese abroad, to raise foreign loans, to tax the fishing boats protected by the navy, etc. Prince Su proposed to raise funds by consolidating the salt revenue of the Empire, but the Treasury Minister opposed it. The sum of $170,000, the New Year allowance of the Imperial Household remitted by the Empress Dowager, was with



H. I. C. M.'S SHIP "HAI-HSIN"

Displacement, 2,950 tons. I. H. P. 7,500, 19.5 knots. Three 5 9 in. quick firing guns, eight 4-in and 13 guns in secondary battery, 3 torpedo tubes. The Hai-Yung class of three protected cruisers, built in 1897-98 by the VULCAN WORKS at Stettin, Germany, for the Chinese Government, through ARNHOLD KARBERG & CO.

her consent appropriated by the Regent for the navy.

The Minister of the Treasury appropriated about $1,700,000 from the opium duties for initial urgent expenses, and after his associates requested a regular allowance of $9,000,000, he managed to spare $3,000,000 from the present funds but advocated that seven tenths of future funds be raised from the different provinces and the balance by contributions from the people and from Chinese abroad with special honors and awards for any one who contributes a gunboat or small vessel.

Some official proposed that instead of draining the peoples' pockets only to raise insufficient revenue, permission be granted to open and develop mines, and use the profits for the navy, but he must have been under foreign influence, for the memorial was shelved. It was further advocated that 30 per cent of the annual net profits of the China Merchants' Steam Navigation Company be set aside for the navy.

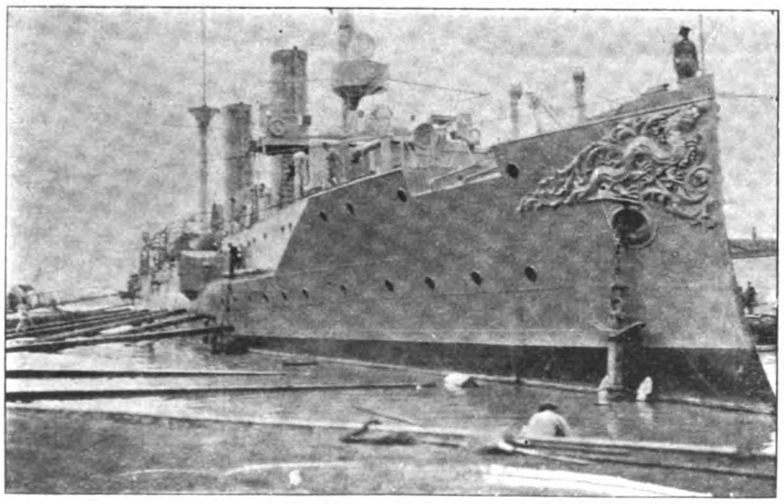
The extremities of the government to raise the large amount for this purpose has led to many reputed offers of foreign financial assistance. German firms, it is reported, offered to loan the money and build the ships. British interests were alleged to stand ready to loan a few hundred millions without any security, and again that America would advance any necessary funds for this purpose.

Owing to the many financial perplexities which practically prohibit China from carrying out any large scheme with the present resources of the government, it is urged that only a large foreign loan can solve the problem, and this cannot be floated until permanent reforms are in force. The latest information is to the effect that the Naval Commission has reported to the Throne that a sum of 18 million taels will be required as preliminary expenses in the carrying out of the naval reforms, and a further annual charge of 2 million taels will be required for maintenance. The report urges that the Board of Finance and the provincial governments may be ordered to provide the above amounts. According to the naval budget, which has been approved by the Throne, the sum of 1½ million taels is for the construction of a naval station, of which amount half a million is required forthwith and the other million next year; the remaining 16,500,000 taels are to be spent on the construction of warships, which will cover a period of four years. The Board of Finance, under instructions from the Throne, undertakes to raise half a million taels this year and one million next year, for the purpose of building a naval station, and as regards the other amount of 16,500 000 taels, which is to be divided into four yearly instalments of something like 4,-250,000 taels, besides which there is another two million taels to be provided every year for maintenance, the Board finds difficulty in raising 6,250,000 taels a year unless it gets the co-operation of the provincial governments. Of that total amount the Board of Finance has expressed its readiness to raise 5 million taels, and asks the Throne to order the Viceroys and the Governors to raise between themselves the balance. In consequence of this the Throne has given instructions to all the Viceroys and Governors, instructing them to report how much each of them can furnish towards the naval funds.

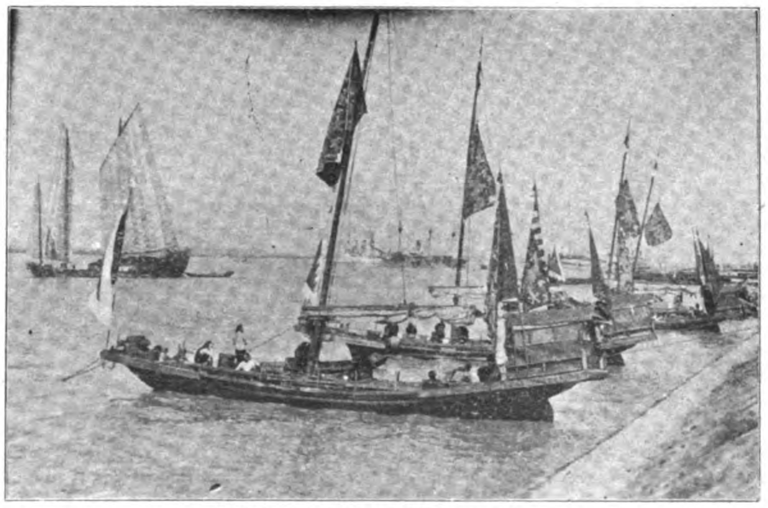
THE IMPERIAL TREASURE

It is quite evident that the foregoing report, which includes only Taels 16,500,000 or roughly speaking $10,000,000 gold, for construction expenses as already outlined, is insufficient. Eight battleships, 20 cruisers, ten gunboats and three flotilla of torpedo boats cannot be constructed for this sum, and strength is given the previous report that $240,000,000 gold will be expended.

But the persistence of the Regent and his advisers in carrying through the scheme, in spite of the apparent lack of sufficient resources, and his refusal to accept foreign financial assistance, leads us to consider another view of the situation which has not been touched. While the Government is poor, and in financial straits, there remains the great wealth of the Imperial family to be reckoned with. Overlooked by the Allied Troops, who ransacked the Palace from end to end, the accumulated treasure of years lies untouched in the secret vaults over which the foreign soldiers lit their camp fires, unconscious of the wealth underneath. The tribute of years to the Empress Dowager and former sovereigns are here hoarded, and available for the country's defense. Native reports are to the effect that an investigation by the Chief of the Imperial Household disclosed the fact that the treasure amounted to Taels 19,-000,000 of gold and Taels 999,000,000 of silver, or roughly speaking some $1,000,000,000 gold. This amount of actual treasure is enormous, and it may be greatly exaggerated. But there is every reason to believe that the Imperial



H. I. C. M.'S SHIP "HAI-YUNG"
In Dock at the Kiangnan Arsenal, Shanghai



THE OLD AND THE NEW
Native Patrol Junks and New Cruisers at Nanking

treasure must be vast, as the tribute from the provinces, gifts from officials and other perquisites of the Throne have been rolling into Peking for years. The money has not been expended on any great public improvements, or buildings, or diverted into any provincial reform scheme, so it is safe to believe that it exists.

If we accept the view that the Regent and other young members of the Imperial Clan broadened by foreign travel, realize that the very existence of the Empire and the dynasty is at stake, we can well believe that in such an emergency the hidden treasure would be drawn on. So when we read that the naval scheme will be carried out in spite of the lack of funds, the only solution is that the Regent is determined at any sacrifice to fulfil his trust, preserve the dynasty, and turn over intact the inheritance of his son when the latter is of age. The appointment of his brother Prince Tsai Hsun as the head of the Navy, and in supreme control of expenditure, insures honest expenditure of the Imperial wealth.

THE KIANGNAN DOCK AND ENGINEERING WORKS

The works of this enterprising company are situated at Kiangnan on the left bank of the Whangpoo River, and since 1905, when the dockyard section of the Imperial Chinese Government Arsenal was taken over by the commercial company, the plant has been extended and brought to a high standard of efficiency.

When the dockyard was taken over, it was at once increased in size and its length over all is now 381 feet. The length on blocks is 375 feet; water on sill 19 feet; entrance top, 70 feet; bottom, 60 feet. Besides the big dry dock a patent slipway is maintained for small steamers and launches with building shops in connection.

While the Kiangnan Dock & Engineering Works are situated on the same site with the Chinese Imperial Arsenal, the institutions are quite separate, yet the company does all the work as general contractors for the Imperial Chinese Navy and the Imperial Maritime Customs.

The pumping plant provided for the drydock comprises two 20-foot and one 10-foot centrifugal compound pumping engines supplied with steam by two large Lancastershire boilers with separate flues and funnels, together with an emergency marine type boiler, all with a working pressure of 100 pounds to the square inch. The berthing of vessels, entering or leaving the dock, is well provided for together with splendid housing accommodations for crews. A pair of sheerlegs are installed on the upper wharf with a lifting capacity of 60 tons propelled by steam winding engine.

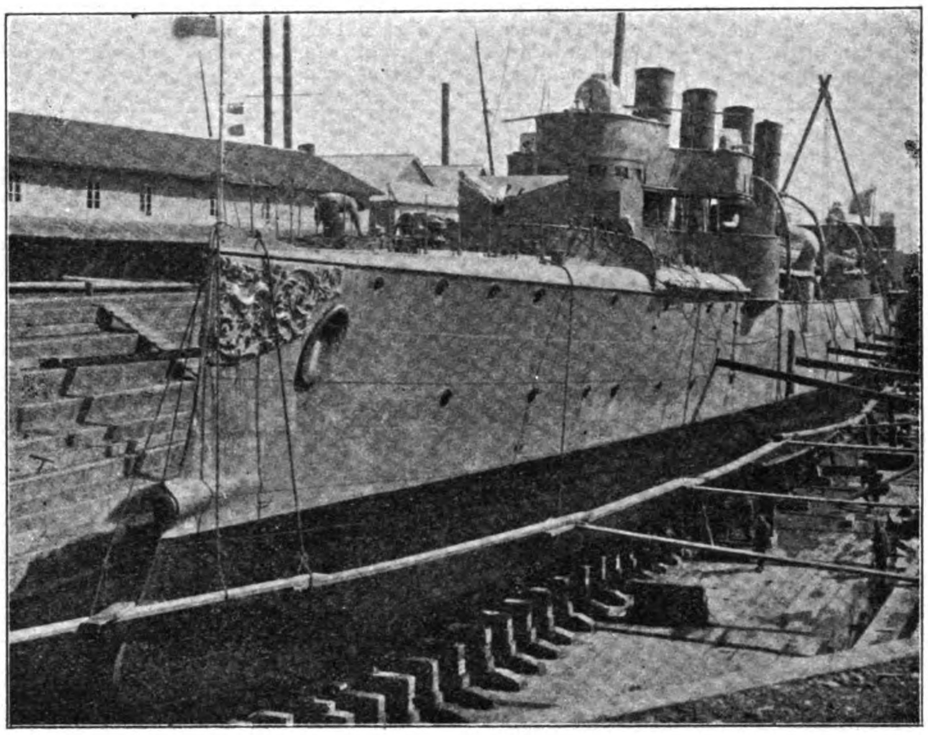
The machine shop is in keeping with the modern, up-to-date character of the docks, which also may be said of the foundry and auxiliary shops. A 40-ton travelling crane serves this commodious building from end to end. Modern face, sliding, and surfacing lathes are installed in this building, among them a heavy triple-geared sliding surfacing screw cutting lathe manufactured by Messrs. Craven Bros. of Manchester, with 25 inch centers and capable of handling any piece of work up to 32 feet in length. There are also a heavy horizontal drilling and bolting machine and a vertical planing machine with horizontal traverse worthy of special notice. The latter can handle a surface 10 feet 6 in. by 16 feet. Besides these more important machines there are a large number of lathes, slotting, planing, screwing and drilling machines of British and American manufacture. The power is supplied by a large horizontal expansion engine with a double cylinder emergency engine as well so as to avoid the delay occasioned by breakdowns.

The foundry is equipped with three 2-ton cupolas and one large one with drop bottom and other latest improvements capable of melting eight tons an hour. The foundry is also served with cranes, one 15-ton and one 3-ton. Under the former is a large circular casting pit capable of casting propellers up to 18 feet in diameter. There is also the brass foundry which is equipped with a Carr's patent crucible furnace with a capacity to meet the requirements of the work.

The pattern shop, the smithy, and the coppersmith shop are close to the foundry. The smithy is served by two 4-ton jib cranes, and the equipment of the shop is sufficient to weld shafts 18 inches in diameter.

The different departments are served by a railway, rails being laid from the wharves and the dock, so that transportation is expedited.

The directors of the company are Admiral Sha, commander in chief of the Imperial Chinese Navy, and Kwong-Kwoh Wah, Taotai Imperial Chinese Navy.

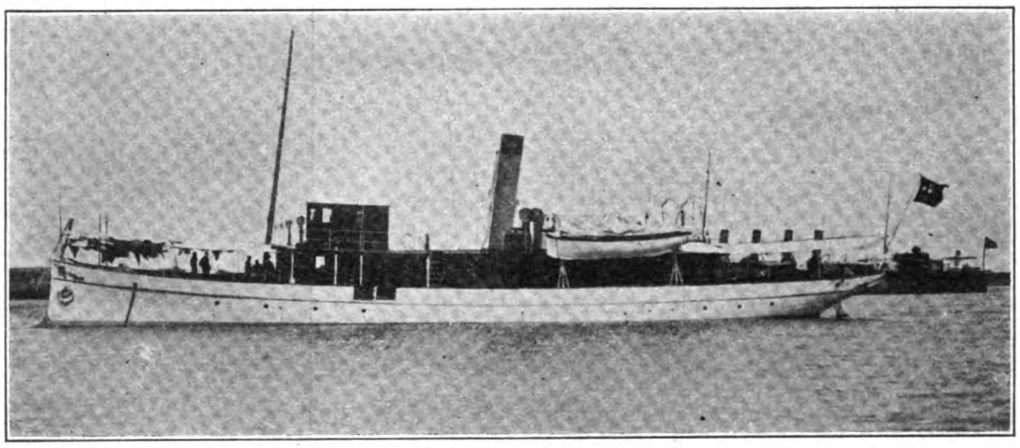


KIANGNAN DOCK WITH A CHINESE CRUISER ON THE WAYS

THE FOOCHOW ARSENAL AND DOCKYARD

This important Imperial Naval Arsenal and Dockyard is situated at the Pagoda Anchorage in Foochow and is known locally as the Mamoi Arsenal. This institution was first built under French direction in 1875, and by a singular turn in international relations was almost destroyed by the French Fleet under Admiral Courbert in 1884 as well as all the fortifications and Fokien naval forces. Since that time the arsenal has been restored and in addition a new dock was ordered constructed in 1887 on Losing Island. This dock is over 300 feet in length and modernly equipped. It has very powerful pumps and a steel caisson making it a very important yard for the repair of Imperial vessels and for the construction of small craft. The reconstruction and direction has been carried on largely under French experts. The extension of the present establishment is now under consideration, and last year the Peking Government sent a deputation abroad to study shipbuilding and the management of naval yards in foreign countries and arranged for the purchase of a large site in addition to the present works for the construction of additional buildings for machine shops and foundry.

Of the recent vessels turned out by this dockyard was the S. S. *Ning Shao* for the Ningpo, Shaoshing S. N. Co., for the service between Shanghai and Ningpo, that made her initial trip July 19th of this year.



H. I. C. M. S. "AN FOON," A STEEL SINGLE SCREW DISPATCH BOAT BUILT BY THE KIANGNAN DOCK AND ENGINEERING WORKS, SHANGHAI, FOR THE NGANA HWUI PROVINCIAL GOVERNMENT.—ARMAMENT, ONE 47 MM. Q. F. GUN; ONE 37 MM. Q. F. GUN AND FOUR MAXIMS.—SPEED 12.5 KNOTS; DISPLACEMENT 170 TONS.

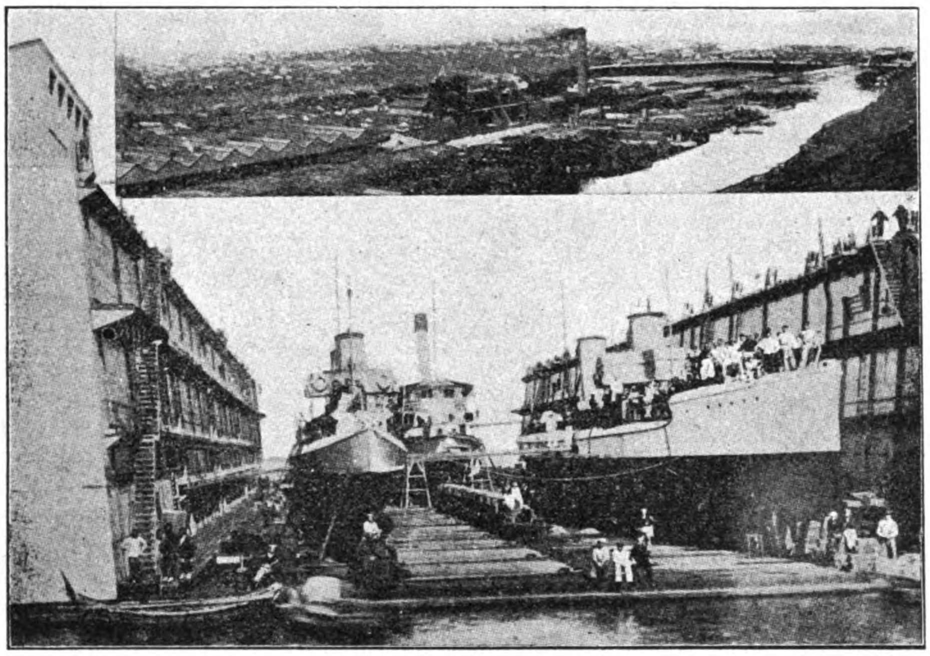
This vessel is 240 feet in length with a 42 ft. beam and draught 10, loaded. She makes 13.5 knots an hour. She has twin screws; is built of steel throughout and is fitted with electric lights and every modern convenience. This gives an idea of the growing capacity of the dock to turn out modern work, and with the proposed reorganization and the expenditure of large sums of money in expansion by the Federal Government, this Arsenal and Dockyard promises to take a prominent part in the development of China's navy and her merchant marine.

THE WHAMPOA DOCK AND NAVAL YARD

The Whampoa Dock and Naval Yard is about all that is of interest at Whampoa and is maintained by the Chinese Government for the repair of the vessels of the South China Gunboat squadron. In addition to the docks a Government Torpedo School has been established at this point.

The history of these docks dates back to the time when only sailing-craft were engaged in the South China trade. Before Hongkong became British, there were mud docks owned by Chinese at Whampoa. The foreign owners of vessels did not care to rely upon the repair of vessels by the Chinese and the P. and O. Company secured the services of Mr. John Couper to supervise such work as was done on its vessels. This pioneer of shipbuilding leased the Chinese Mud Docks and added the Couper Dock which was built larger and along more modern lines. Then followed the clash between the Chinese and the British over the Lorcha Arrow affair and the Chinese destroyed the Couper Dock in part. It was afterwards repaired and an indemnity paid. Couper was kidnapped and disappeared and his son was paid $120,000 by the Chinese. In 1863 young Couper sold his interest to Messrs. Douglas, Lapraik and Company and to the Hon. Thos. Sutherland, superintendent of the P. and O., and the Hongkong and Whampoa Dock Company, Ltd., was formed. Afterwards the company found it necessary to increase its facilities and purchased the Lamont and Hope docks at Aberdeen, and later the Cosmopolitan Dock Co.'s property, all of which has since been extended and improved.

In the meantime the large mud docks at Whampoa, which still belonged to the company, were sold to the Chinese Government, and it is this property that is now designated as the Whampoa Dock and Naval Yard. From time to time Peking has indicated interest in its development, and it is expected with the carrying out of the naval program that these docks will not be neglected.



VICEROY'S ARSENAL AT HANYANG: FLOATING DOCK IN THE HARBOR OF TSINGTAU

CHINA'S NAVAL LIST

(From "The Naval Pocket Book," 1908.)

(It is reported that the Chinese Navy is to be reorganized with the assistance of the Japanese Government. 3 battleships of 14,000 tons, 3 second-class cruisers, and some torpedo boats are proposed.)

The following suffixes indicate to which of the four local fleets each vessel belongs:
(N) North Sea fleet. (F) Foo-kien flotilla.
(S) South Sea fleet. (C) Canton fleet.

PROTECTED CRUISERS.

"Hai-chi," (N). Built at Elswick, Jan. 23, 1898.

Steel. 2 screws. 2 funnels f. and a. 2 mil. masts, 2 tops on each.

Length, 396 ft. over all. Beam, 46 ft. 7 in. Mean draught, 16 ft. 8 in.

Displ., 4300 tons. I.H.P. 17,000=24 kts. for., and 22.5 kts. nat.

Coal cap., 400-1000 tons=8,000 miles at oceen. sped.

Engines: 4 cylind. 3 expans. Boilers, cylinde. 4 double, 4 single-ended, by Hawthorn, Leslir & Co. Grate area, 940 sq. ft. Heating surface 27,560 sq. ft.

Protection: Steel deck, 1½ to 5 in. 8-in. gun supports and hoists are 4 in. Shields, 4½ in. Conning tower, 6 in.

Armament: 2-8 in. Q.; 10-4.7 Q.; 12-3 pr. Q.; 4-1 pr. and 6-.45 in. Maxims. Torpedo tubes (18 in.), 5, above water. (There are on sponsons.)

"Hai-yung," (N). Built at Stettin, Sept. 16, 1897.
"Hai-chew," (N). Built at Stettin, Dec. 11, 1897.
"Hai-chen," (N). Built at Stettin, Feb. 12, 1898.

Steel. 2 screws. 2 funnels f. and a. 2 masts, 1 top high on each.

Length, 328 ft. Beam, 40 ft. 9 in. Mean draught, 14 ft. 5 in.

Displ., 2,950 tons. I.H.P. 7,500=19.5 kts. Coal cap., 200-500 tons.

Engines: 2 sets 3 expans. Boilers, cylind. Protection: steel deck, 1.5 to 2.7 in. Gun positions, 2 in.

Armament: 3-5.9 in. Q.; 8-4 in. Q.; 6-1 pr. Q.; 6 Maxim mach.; 1-2.3 in. boat or field. Torpedo tubes, 3; two above water on beams, one submerged in bow. Compt. 244.

CRUISERS.

"Ton-chi," (N), 1895.

Steel. 1 screw. 1 funnel. Barque-rigged. Displ., 1,800 tons. Speed, 15 kts. Armament: 2-5.9 in. Q.; 1-4.7 in. Q.; 2 small Q. Compt. 244.

"Nan-thin," (S), Howaldt, Kiel, Jan. 8, 1883.

Steel. 1 screw. 2 funnels. Barquentine. Length, 235 ft. Beam, 36 ft. Mean draught, 18 ft. Displ., 2,200 tons.

I.H.P. 2,400=14.2 kts. Coal cap., 460 tons. Armament: 2-8 in. B.; 7-40 pr. Vavasseur; 1-4.7 in. Krupp Q.; 3 Nord. mach.; 1 Maxim. Torpedo tube, 1. Compt. 250.

"King-ching," (S), Foo-chow, 1886.

Wood. 1 screw. 1 funnel. Barquentine. Length 263 ft. Beam, 32 ft. 3 in. Draught, 15 ft. Displ., 2,100 tons. I.H.P. 2,400=14 kts. Coal cap. 360 tons. Armament: 2-7 in. Armstrong B.; 7-40 pr. B.; 6 Maxims. Torpedo tubes, 2. Compt. 231.

"Pao-min," (S), 1884.

Composite. 1 screw. 1 funnel. Barquentine. Length 217 ft. Beam 36 ft. Mean draught, 14 ft. Displ., 1,477 tons. I.H.P. 2,400=14 kts. Coal cap., 360 tons=3,360 miles. Armament: 2-5.9 in. Krupp B.; 6-4.7 in. Krupp B.; 4 mach. Torpedo tubes, 2; one on each bow. Compt. 260.

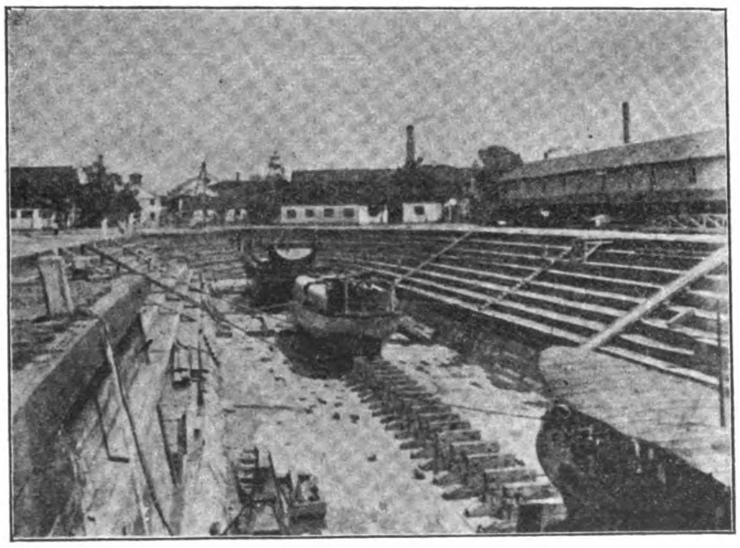
TORPEDO GUN VESSELS.

"Kien-wei," (S), Foo-chow, 1900.
"Kien-an," (S), Foo-chow, 1900.

Iron. 2 screws. Poop and forecastle. 2 funnels f. and a. 2 sig. masts. Length 255 ft. Beam, 26 ft. 8 in. Max. draught, 11 ft. 5 in. Displ., 817 tons. I.H.P. 7,000=23 kts. Trial speed (1903) about 20.5 kts. Engines in France by Forges et Chantiers at Havre. Boilers: Normand-Sigaudy. Protection: sides and deck amidships, 1 in. Armament (Canet): 1-3.9 Q. forward; 3-9 pr. Q.; 6-1 pr. Q. Torpedo tubes, 2.

"Fui-ying," (N), Stettin, July 11, 1897.

Steel. 2 screws. Ram bow. 4 funnels. 2 pole masts. Length 246 ft. Beam, 28 ft. 5 in. Mean draught 13 ft. Displ., 850 tons. I.H.P. 5,500=22 kts. 8 Yarrow tubulous boilers. Coal cap., 180 tons.



GENERAL VIEW OF THE KIANGNAN DOCK

GUNBOATS.

"TSOW-HAI," (S).

Wood. 1 funnel. Ram bow. Length 168 ft. Beam, 27 ft. 5 in. Displ., 730 tons. I.H.P. 430=12.5 kts. Armament: 5-40 pr. Krupp B.; 2-12 pr. copper guns.

"TAI-AN," (N), 1896.

Wood. 1 screw. 3 masts. Length, 200 ft. Beam, 32 ft. 8 in. Draught, 12 ft. 5 in. Displ., 1,250 tons. I.H.P. 600=10 kts. Armament: 4-40 pr. Vavasseur; 2-3 pr. Compt. 83.

"CHEN-HAI," (N), Foo-chow, 1875.

Wood. 1 screw. 1 funnel. 2 masts. Schooner rigged. Length, 166 ft. Beam, 26 ft. Draught, 10 ft. 3 in. Displ., 950 tons. I.H.P. 350=9 kts. Coal cap., 160 tons. Compt. 260.

"TOENG-YING-CHOU," (S), Foo-chow, 1875.

Wood. 1 screw. Clipper bow. Brig-rigged. 1 funnel. Length, 200 ft. Beam, 33 ft. Mean draught, 11 ft. 6 in. Displ., 1,258 tons. I.H.P. 600=10 kts. Armament; 1-6.3 in. Vavasseur; 6-3.9 in. Vavasseur; 5 mach. Compt. 260.

"TSOW-TSAI," (S).

Wood. Brig-rigged. Clipper bow. 1 funnel. Displ., 950 tons. Speed, 14 kts. Armament: 1-40 pr. Armst.; 2-16 pr.; 2-10 pr. Armst.; 2 Maxims.

"TSOW-HAI," (S).

Wood. 1 funnel. Ram bow. Length, 168 ft. Beam, 27 ft. 5 in. Displ., 730 tons. I.H.P. 430=12.5 kts. Armament: 5-40 pr. Krupp B.; 2-12 pr. copper guns.

"CHING-YUEN," (S).

Wood. 1 funnel. Brig-rigged. Ram bow. Length, 160 ft. Beam, 26 ft. Draught, 10 ft. Displ., 587 tons. I.H.P. 478=10 kts. Armament: 1-60 pr. Vavasseur; 5 other guns; 2 Maxims. Compt. 118.

"TSO-TING," (S), (ex-Delta), Elswick, 1877.

Iron. 2 screws. 1 funnel. Schooner-rigged. Length, 121 ft. 4 in. Beam, 29 ft. 5 in. Draught 8 ft. 2 in. Displ., 400 tons. I.H.P. 310=9 kts. Armament: 1-26 ton Armstrong; 2-90 pr. Armstrong B.; 1 Maxim. Compt. 61.

"FON-CHIN-CHAI," (C), 1867.

Wood. 1 screw. Length, 165 ft. Displ., 800 tons. I.H.P. 500. Armament: 2-40 pr.; 2-20 pr.; 2 Maxims. Compt. 120.

"KUANG-YII," (C), 1891.
"KUANG-KING," (C), 1890.

Wood. 2 screws. Length, 150 ft. Beam, 24 ft. Draught, 9 ft. 5 in. Displ., 600 tons. I.H.P. 500=12.5 kts. Armament: 2-4.1 in. Krupp B.; 2-3.3 in. Krupp B.; 2 Maxims.

"HAI-KING-CHIN," (C), (ex-Lambont), Elswick, 1881.

Wood. 1 screw. 1 funnel. Schooner-rigged. Length, 125 ft. Beam, 29 ft. Mean draught, 9 ft. 3 in. Displ., 450 tons I. H. P. 300=10 kts. Coal cap., 60 tons. Armament: 1-11 in. Armstrong B.; 2-18 pr. B.; 3 Maxims. Compt. 63.

"CHEN-TAO," (C), 1867.

Wood. 1 screw. 1 funnel. 2 masts. Length, 150 ft. Draught, 8 ft. 6 in. Displ., 450 tons. I.H.P. 265=7 kts. Armament: 4-1.6 in. Q.; 4-1.4 in. Hotchkiss; 2 filed guns Compt. 67.

"KUANG-KAN," (C), China, 1887.
"KUANG-MAO," (C), China, 1887.
"KUANG-CHII," (C), China, 1887.

Wood. 1 screw. Schooner-rigged. Length. 150 ft. (Kuang-kan, 144 ft.) Beam 20 ft. 7 in, Mean draught, 10 ft. (Kuang-mao, 7 ft.). Displ., 560 tons. I.H.P. 400=11 kts. Armament: 1-4.7 in. Krupp B.; 1-3.9 in. Krupp B.; 4 mach. (Kuang-kan has 3-4.7 in. Krupp B.; 3-3 in. Krupp.; 1 Hotchkiss mach.)

"NIN-HO," (S), 1882.

Ram bow. 1 funnel. 2 masts. Schooner-rigged. Displ., 354 tons. Armament: 5 Krupp guns.

"FUI-HOU," (S).

2 masts. Displ., 350 tons. Armament: 2-20 pr.

"KIN-AU," (S), 1882.

Iron. 2 screws. Length, 100 ft. Displ., 195 tons. I.H.P. 50. Armament: 1-6 in. Krupp B.; 1-4.7 in. Krupp B.; 1 Maxim. Compt. 53.

"PING-CHING," (S), 1880.

Iron. 1 screw. 1 funnel. 2 pole masts. Length, 273 ft. Beam, 30 ft. Draught, 18 ft. Displ., 532 tons. I.H.P. 480. Armament: 1-6.2 in. Armstrong; 4-4.3 in. Armstrong; 1-3.5 in. Armstrong.

"CHIN-HAI," (F), 1872.

Wood. 1 screw. Length, 160 ft. Beam, 26 ft. Draught, 10 ft. Displ., 578 tons. I.H.P 480. Armament: 1-6.2 in. Armstrong; 4-4.3 in. Armstrong; 1-3.5 in. Armstrong.
(Torpedo Depot Ship at Foo-chow.)

"AN-LAN," (C), 1871.

Wood. 2 screws. Length, 150 ft. Draught, 8 ft. 6 in. Displ., 350 tons. Speed 7 kts. Armament: 5 guns. Compt. 70.

"HAI-TON-SHON," (C), 1881.

Wood. 2 screws. Length, 125 feet. Beam, 29 ft. Draught, 9 ft. 3 in. Displ., 350 tons. I. H. P. 200=8 kts. Armament: 1-11.5 ton Armstrong; 1-18 pr. Armstrong; 3 Maxims. Compt. 62.

"HAI-CHAN-CHIN," (C), 1871.

Wood. 2 screws. Displ., 500 tons. I.H.P. 455=10.4 kts. Armament: 1-11.5 ton Armstrong; 1-18 pr. Armstrong; 3 Maxims. Compt. 63.

"SOI-CHING," (C), 1871.

Wood. 2 screws. Length, 130 ft. Displ., 350 tons. I.H.P. 180=6.5 kts. Armament: 1-40 pr. Krupp B.; 1-18 pr. Gatling. Compt. 39.

"KUANG-YUEN," (C), 1886.
"KUANG-CHING," (C), 1886.
"KUANG-HONG," (C), 1886.
"KUANG-LI," (C), 1886.

Wood. 2 screws. Length, 110 ft. Beam, 18 ft. Draught, 7 ft. 6 in. Displ., 300 tons. I.H.P. 78=7 kts. Armament: 1-4½ ton Krupp B.; 1-3.5 in. Krupp B.
(Coast Defense Vessels.)

"KUANG-KING," (C).
"FUI-WING," (N).

Small gunboats.

ARMOURED GUNBOAT.

"TIEN-SING," 1875.

Wood, 2 screws. 1 turret. 1 funnel. Length, 105 ft. Beam, 20 ft. Mean draught, 6 ft. 6 in. Displ., 200 tons. I.H.P. 340=10 kts. Armour: citadel, 2 in. Turret, 3 in. iron. Armament: 1-7 in. Krupp, B.

SPECIAL SERVICE VESSEL.

"FEE-CHEU," Doxford, Sunderland, Apr. 20, '87.

Steel. 2 screws. Fitted both as cruiser and as cable ship. Length, 219 ft. Beam, 33 ft. Mean draught, 13 ft. 4 in. Displ., 1,400 tons. I.H.P. 1,000=13 kts. Engines: 3 expans. Armament: 2-6 in. Armstrong B.; 4 mach.

RIVER GUNBOATS.

"KIANG-YUAN," (S), Kobe, 1905.

Steel. 2 screws. Length, 170 ft. Beam, 28 ft. Draught, 8 ft. Displ., 565 tons. I.H.P. 487=14.7 kts. (on trial). Armament: 1-4.7 in. Q.; 1-3 in. Q.; 4-3 pr. Q.; 4 Maxims.

"CHEW-TAI," (S), Kobe, 1906.
"CHEW-TIEN," (S), Kobe, bldg.
"CHEW-TONG," (S), Kobe 1906.
"CHEW-YUI," (S), Kobe, bldg.
"CHEW-IU," (S), Kobe 1906.
"CHEW-KOANG," (S), Kobe, bldg.

Steel. 2 screws. 2 funnels. 2 pole masts. Length, 190 ft. Beam, 29 ft. 6 in. Draught, 8 ft. Displ., 750 tons. I.H.P. 1,350=13 kts. Armament: 2-4.7 in. Q.; 2-12 pr. Q.; 4 Maxims.

FLOATING BATTERIES.

1	4
2	5
3	6

Wood. 1 screw. 1 wood turret. Length, 135 ft. Beam, 36 ft. Mean draught, 11 ft. 8 in. Water line belt 1 in. iron. Armament: 3-9 in. 12-ton M. in the turret.

DESPATCH VESSELS AND TRANSPORTS.

"CHIN-HAN," (F), 1873.

Wood. 1 screw. Length, 201 ft. Beam, 35 ft. Draught, 13 ft. Displ., 1,450 tons. I.H.P. 600=9 kts. Armament: 1-6.2 B.; 4-4.7 in. B. Compt. 107.

"YUEN-KAI," (F), 1875.

Wood. 1 screw. 1 funnel. Clipper bow. 3 masts. Length, 11 ft. 5 in. Displ., 1,258 tons. I.H.P. 600=10 kts. Armament. 1-6.2 in. Vavasseur; 4-3.9 in. B. Compt. 84.

"CHAO-WU," (F), Foo-chow, 1878.

Wood. 1 screw. Ram bow. 1 funnel. Brigantine-rigged. Length, 210 ft. Beam, 30 ft. Mean draught 12 ft. 6 in. Displ., 1,209 tons. I.H.P 750=11 kts. Armament: 1-7.5 in. B.; 4-40 pr. Compt. 84.

"FU-PO," (C), 1870.

Wood. 1 screw. Displ., 1,260 tons. Speed, 10 kts. Armament: 2-6.2 in. B.; 6-40 pr.

"SI-CHEW," (C), 1878.

Wood. 1 screw. Displ., 500 tons. I.H.P. 300. Armament: 1-20 pr. Krupp B., 2-12 pr. Q.; 2 Maxims. Compt. 70.

*BANKING IN JAPAN

(Concluded.)

It was established as a joint-stock company under the Law of the Hypothec Bank of Japan (Law No. 82, 1896), with a capital of *yen* 10,000,000 (£1,024,275), of which *yen* 5,000,000 (£512,138) is paid up.

The business of the Bank is principally (1) to make on mortgage of immovable property loans which shall be redeemable by annual instalments within a period not exceeding fifty years, or at a fixed term of not more than five years, provided in the latter case the total amount of such loans does not exceed one-tenth of the total amount of loans redeemable by annual instalments; (2) to make loans without security to Prefectures, Districts, Cities, Towns, Villages, and other public corporations organized by law; (3) to make loans without security redeemable at a fixed term or by annual instalments in cases of the re-adjustment of arable land under the law for such re-adjustment; (4) to take up the agricultural and industrial debentures issued by the various agricultural and industrial banks which are established under the Agricultural and Industrial Banks Law; (5) to accept funds in trust in connection with its business and take custody of gold and silver bullion and negotiable papers; and (6) in the event of the Bank receiving any funds in trust above referred to or having in the course of its business money lying idle, to purchase therewith temporarily various national and local loan bonds or with the approval of the Minister of Finance, to deposit such funds or money in a trustworthy bank.

The Hypothec Bank is authorized, when at least one-fourth of its nominal capital has been paid up, to issue mortgage debentures to an amount not exceeding ten times its paid-up capital, provided the amount of such debentures shall not exceed the total amount of outstanding loans redeemable by annual instalments and the agricultural and industrial debentures in hand. These debentures must be redeemed with premiums by means of drawings taking place at least twice a year in amounts proportionate to the amount to be redeemed in the same year of the loans redeemable by annual instalments and agricultural and industrial debentures in hand. In case any loans redeemable by annual instalments are repaid before they are due, the Bank may with the amount so repaid purchase and redeem its mortgage debentures.

The mortgage debentures have since April, 1907, been issued for the absorption of small funds scattered among the people. The face-value of these debentures, formerly twenty *yen*, is now reduced to ten *yen*.

The Industrial Bank of Japan. (Nippon Kogyo Ginko).—The Industrial Bank of Japan is a joint-stock company established under the Law of the Industrial Bank of Japan which was promulgated in March, 1900. Its author-

* The Financial and Economic Annual of Japan.

ized capital which was at first *yen* 10,000,000 (£1,024,275) was raised to *yen* 17,500,000 (£1,792,482) in February, 1906, by the amendment of the Law, of which *yen* 16,250,000 (£1,664,447) is now paid up. Just as the Hypothec Bank is intended to furnish long, low-interest loans on mortgage of immovable property for agricultural and industrial enterprises, so the Industrial Bank makes it its special object to handle bonds and shares of various kinds. While the former is a kind of *crédit foncier*, the latter is a species of *crédit mobilier*.

The business carried on by the Industrial Bank is (1) to make loans on pledges of national and local loan bonds and companies' debentures and shares; (2) to subscribe for, or take up national and local loan bonds and companies' debentures; (3) to receive deposits of money and accept the custody of articles of value; (4) to engage in trust business; (5) to discount bills presented with national or local loan bonds, or companies' debentures or shares as security; and (6) to make loans on security of a foundation created as prescribed by law. Owing to the defect of law, the trust business was very inactive till March, 1905, when the Law of Trusts for Secured Debentures, and the Railway, Factory and Mining Mortgage Laws were promulgated, and since then this branch of business has made steady progress.

The Bank is authorized to issue debentures to an amount not exceeding ten times its paid-up capital, provided, however, the amount of such debentures shall not exceed the total amount of outstanding loans, discounted bills, and national and local loan bonds and companies' debentures and shares in hand. Only in the event of funds being required for enterprises for public benefit undertaken in a foreign country may the Bank, with the approval of the Minister of Finance, issue debentures irrespectively of the above-mentioned restriction.

Agricultural and Industrial Banks. (Noko Ginko).—The Agricultural and Industrial Banks are local financial organs for furnishing long-term loans at a low rate of interest and, being established in every prefecture, are most useful through their connection with their central organ, the Hypothec Bank of Japan.

The Agricultural and Industrial Banks are joint-stock companies established under the Agricultural and Industrial Banks Law of April, 1896, and have each a capital of not less than *yen* 200,000 (£20,486). Each of these Banks has as a general rule for its exclusive business district the whole of Hokkaido or a prefecture.

The business carried on by Agricultural and Industrial Banks is principally (1) to make on mortgage of immovable property loans which shall be redeemable by annual instalments within a period not exceeding thirty years, or at a fixed term of not more than five years, provided in the latter case the total amount of such loans does not exceed one-fifth of the total amount of loans redeemable by annual instalments; (2) to make similar loans, but without security, to Cities, Towns, Villages, and other public corporations organized by law; (3) to make loans without security redeemable at a fixed term of not more than five years to a party of at least twenty persons combined with joint liability, who are engaged in agriculture or industry, or to associations created under the Industrial Associations Law; (4) to make loans without security redeemable at a fixed term in case of the re-adjustment of arable land under the law for such re-adjustment; (5) to receive fixed deposits and accept the custody of gold and silver bullion and negotiable papers; and (6) to purchase temporarily various national or local loan bonds or mortgage debentures of the Hypothec Bank with money lying idle in the ourse of their business or to deposit such money in other banks. They may also take charge of the receipt and disbursement of the funds of their respective prefectures.

The Banks are authorized, when at least one-fourth of the nominal capital has been paid up, to issue agricultural and industrial debentures to an amount not exceeding five times the paids up capital such debentures, moreover, must not exceed the balance of the total amount of outstanding loans redeemable by annual instalments after deducting therefrom that part thereof which has been given as security for money borrowed from the Hypothec Bank. These agricultural and industrial debentures must be redeemed with premiums by means of drawings at least twice a year in amounts proportionate to the amount thereof to be redeemed in the same year.

With the object of aiding these Banks in their business in accordance with the provisions of the Agricultural and Industrial Banks Aid Law of April, 1896, the Government delivered in a fixed proportion to the Prefectural Authorities (those of Okinawa Prefecture excepted) the funds provided in the Budget for taking up the shares of the Agricultural and Industrial Banks in the respective business districts over which they exercise jurisdiction.

The Hokkaido Colonial Bank. (Hokkaido Takushoku Ginko).—The Hokkaido Colonial Bank was established with the object of supplying capital for enterprises for colonizing and exploiting Hokkaido, and especially for the purpose of facilitating the supply of capital by making loans on security of agricultural products and companies' shares and debentures as well as by making long-term loans of low interest on immovable property.

The Bank was established as a joint-stock company under the Law relating thereto which was promulgated in March, 1899, and has a capital of *yen* 5,000,000 (£512,138), of which *yen* 3,500,000 (£358,496) has been paid up.

The business of the Bank is (1) to make on security of immovable property loans redeemable by annual instalments within a period not exceeding thirty years or at a fixed term of not more than five years; (2) to make loans on pledges of the shares and debentures of joint-stock companies which have for their object the colonization and exploitation of Hokkaido, and to subscribe for or take up the debentures of such companies; (3) to deal in bills of exchange and documentary bills and to make loans on security of agricultural products of Hokkaido; (4) to receive deposits and accept the custody of objects of value; (5) to discount bills accompanied by definite security; (6) to make loans without security redeemable by annual instalments or at a fixed term to public corporations in Hokkaido; (7) to make loans without security redeemable at a fixed term of not more than five years to a party of at least twenty persons combined with joint liability, who are engaged in agriculture or industry, or to Associations created under the Industrial Associations Law; and (8) to purchase national or local loan bonds or companies' debentures with money lying idle in the course of its business.

The Bank is authorized to issue debentures to an amount not exceeding five times its paid-up capital; such debentures, moreover, must not exceed the total amount outstanding of the aforementioned loans on mortgage of immovable property which are redeemable by annual instalments within a period not exceeding thirty years. These debentures must be redeemed by means of drawings at least twice a year in amounts proportionate to the amount of the said loans to be redeemed in the same year.

The Bank of Taiwan. (Taiwan Ginko).—The Bank of Taiwan was established as a joint-stock company under the Law of the Bank of Taiwan which was promulgated in March, 1900. Its capital is *yen* 5,000,000 (£512,138), of which *yen* 5,000,000 (£512,138) has been paid up.

The business of the Bank is (1) to discount bills of exchange and other commercial bills; (2) to engage in exchange business; (3) to collect bills for merchants who are its regular customers; (4) to make loans on securities of a reliable nature; (5) to receive deposits and accept overdrafts; (6) to accept the custody of articles of value, such as gold and silver coins and documents; (7) to buy or sell gold and silver bullion; and (8) to act as agent for other banks.

The Bank is privileged to issue bank-notes of one *yen* and upward, which are at any time convertible into gold *yen*. It is required to hold as conversion reserve gold and silver coins and bullion of the same amount as the notes issued; the amount of notes not covered by this specie reserve is limited to *yen* 5,000,000 (£512,138); they may be issued on security of Government paper money and securities, notes of the Bank of Japan, and other bonds and commercial bills of a reliable nature. Notes issued beyond this limit are subject to a tax of not less than five per cent per annum.

The above are some of the important provisions of the present Law of the Bank of Taiwan revised in February, 1906. Previous to this, one-*yen* silver coins were allowed to circulate as legal tender in Taiwan at a ratio to gold fixed by the authorities, and the notes issued by the Bank were to be convertible into silver *yen*. But the fluctuations of the official ratio of silver *yen* to gold led the people to enter on speculation, which resulted in so many evils that the currency reform in the island could no longer be delayed. Consequently, the Taiwan Administration Office issued an ordinance in July, 1904, to meet this emergency, which provided that the Bank should be allowed to issue notes convertible into gold and the circulation of the silver *yen* in Taiwan cease. Since then, the gold notes in circulation have increased to a considerable extent and the silver notes almost disappeared from circulation, so that the Law of the Bank of Taiwan was revised so as to recognize legally the issue of gold notes by the Bank, and the unification of the currency system in the island was thus effected.

The banks above described, namely, the Yokohama Specie Bank, the Bank of Japan, the Industrial Bank of Japan, the Agricultural and Industrial Banks, the Hokkaido Colonial Bank, the Bank of Taiwan, and the Hypothec Bank of Japan, are, as has already been described under their respective heads, banks established, each with its own special object, under Government protection. While they are subject to more or less restrictions due to the objects for which they were respectively established, they enjoy on the other hand privileges more or less profitable, which amply compensate them for the disadvantages of their limited field of business. They are at the same time under special Government control.

NEW PHILIPPINE ROOFING TILE

Mr. H. Thurber, General Manager of the Manila Construction Company of Manila, has patented a double interlocking reinforced cement roofing tile that bids fair to surpersede all other kinds of roofing material in the Philippines if not in Eastern Asia. The tile as manufactured by the company covers one-twelfth of a square meter or it takes twelve tiles to cover one square meter of surface. The reinforcing consists of two No. 13 wires and two No. 16 wires. The tile is fastened to the roof by copper wire sufficiently strong to resist the most severe typhoons and, at the same time, allows sufficient movement to give maximum protection from earthquakes. The weight is nine pounds to the square foot and is guaranteed to carry a weight of 175 pounds.

This tile has been adopted as the standard by the Philippine Government and has been approved by the U. S. Quartermaster Department in Manila. It was utilized by the Philippine Government for the entire roofing of the General Hospital, of which the Manila Construction Company are the contractors. Approximately 120,000 tiles were used on this job alone. Besides, tiles have been ordered for the Pandacan veterinary building, the San Fernando Jail, the Medical School, and the Manila Railway Company is using them for roofing on stations along its lines.

The temporary plant is situated on the Philippine General Hospital site, Manila, but arrangements are being made to instal extensive permanent works to meet the growing demand for this most desirable roofing material.

ONE SHIPMENT OF FOUR MILLION PHILIPPINE CIGARS

The manifest of the S. S. *Siberia*, Pacific Mail, registered a consignment of 4,000,000 cigars from Manila to San Francisco. This makes an export of over 6,000,000 since the passage of the Payne Bill. Nearly every tobacco manufacturer was represented in the shipment.

* PHILIPPINE IRRIGATION.—AMBALANGAN-DARLIN PROJECT

The irrigation movement in the Philippine Islands, initiated by the present Acting Governor-General while Secretary of Commerce and Police, has resulted in the investigation of a number of very desirable irrigation projects. Among these projects one of the largest and most feasible is the Ambalangan-Dalin project in the province of Pangasinan. This project proposes the irrigation of 30,000 hectares of land in the south-eastern part of the province at a total estimated cost of ₱1,000,000.00. This project takes its name from the sitio where water is to be diverted from the Agno River. The irrigation district comprises the lands lying within the limits of the municipalities of San Manuel, Asingan, Urdaneta, and Villasis, which have a total population of 61,991.

The entire territory is admirably adapted to irrigation. The high grounds commence at the mouth of the Agno Gorge which is the point of diversion for the main canal and slope gently toward the south and east. On account of the slope of the country, no difficulty will be encountered in building canals and taking water to any part of the district. Almost the entire area is now devoted to the cultivation of rice, and the project will have the advantage that all the irrigable lands are now prepared to receive water. In the dry season a crop of mongos, a kind of bean, is harvested. The mongo crop follows the rice and requires little water. It is planted in January and February and harvested in April and May. Any system of irrigation which will insure the rice crop in the rainy season will, for a much higher duty, insure the mongo crop during the dry season.

In designing this project the duty of water has been taken at 1 liter per second per hectare. This is equivalent to a duty of 70 acres per cubic foot per second, which is a low duty in the United States. This duty will deliver to the rice fields one meter deep of water in 116 days which is considered entirely adequate for the rainy season crop. It is not expected that much of the land will be planted in rice during the dry season. Mongos and other crops will be grown in order to give the proper rotation of crops to prevent impoverishing the soil.

Dagupan, the principal market for this district, is reached by a first class road. It is probable that the Manila Railroad Company will extend their Paniqui-Cuyapo branch to Tayug in a short time. This will give better transportation facilities to the district and bring it into direct communication with Manila.

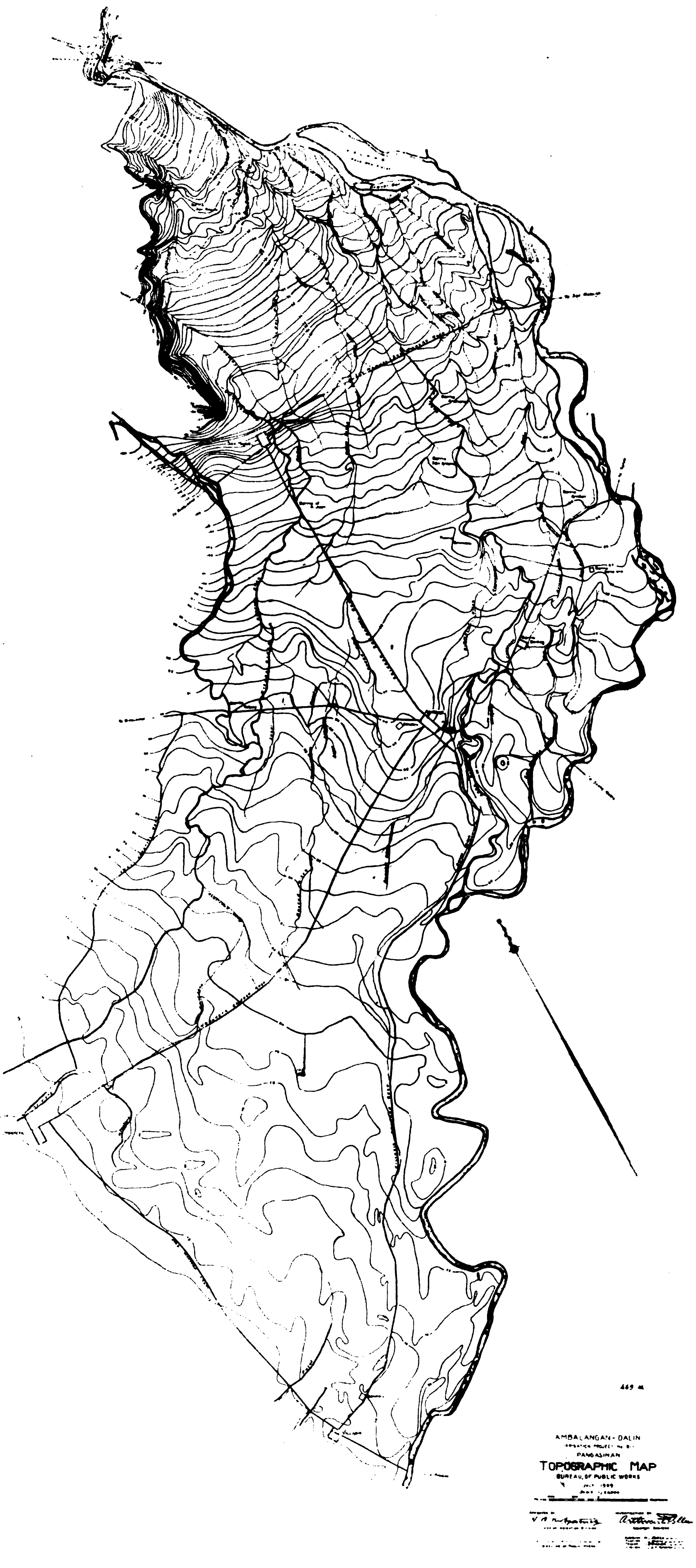
A feature of the proposed system is the possibility of producing electric power at the falls along the main canal. It is estimated that sufficient power can be developed to light all the towns in the district by electricity, and to furnish power for rice mills capable of handling the entire crop. With cheap power, good transportation facilities, and unfailing crops, the Ambalangan-Dalin Irrigation District promises to be one of the richest parts of the Islands.

Investigation on this proposition was commenced in July, 1906. At that time it was proposed to repair the existing irrigation systems of the district. These systems consist of ditches heading on the Agno River, and taking water either with or without the assistance of temporary diversion works. Canals, which take water direct from the river without the use of diversion works, secure water only in floods and semi-floods. Canals with temporary rock and brush dams get water at much lower stages of the river, but they have the disadvantage that these dams must be rebuilt several times a year. These temporary works have also caused considerable trouble in the district. Water users go on the rule of "him that takes, gets." Naturally those irrigators on the lower reaches of the canals have not always had water for their crops, while those nearer the river have had plenty. In a number of instances bolo fights have occurred, and there has been considerable friction between the different municipalities. Another objection to the temporary works was that water was not always available. In times of drought water might be lacking and a large part of the crop would be lost.

In investigating the project these objections were brought out, and a permanent, government controlled system was proposed for the district for four reasons:

(1) Water would always be available.
(2) Water could be distributed justly.

* Written for the *Review* by H. B. Kirkpatrick, Assoc. Mem. Am. Soc. C. E., in charge of the Division of Irrigation, Bureau of Public Works.



(3) More economical use of water.

(4) Water would eventually be cheaper than under the present method.

In July, 1908, the present investigation was authorized and field work was begun in October of the same year. It was at first proposed to construct a masonry weir in the river at some suitable point below the Agno Gorge, and then to conduct the water through canals from this weir. Several months were spent in investigating weir sites, but no site could be found where a weir could be built to withstand the terrific force of the floods of the Agno River.

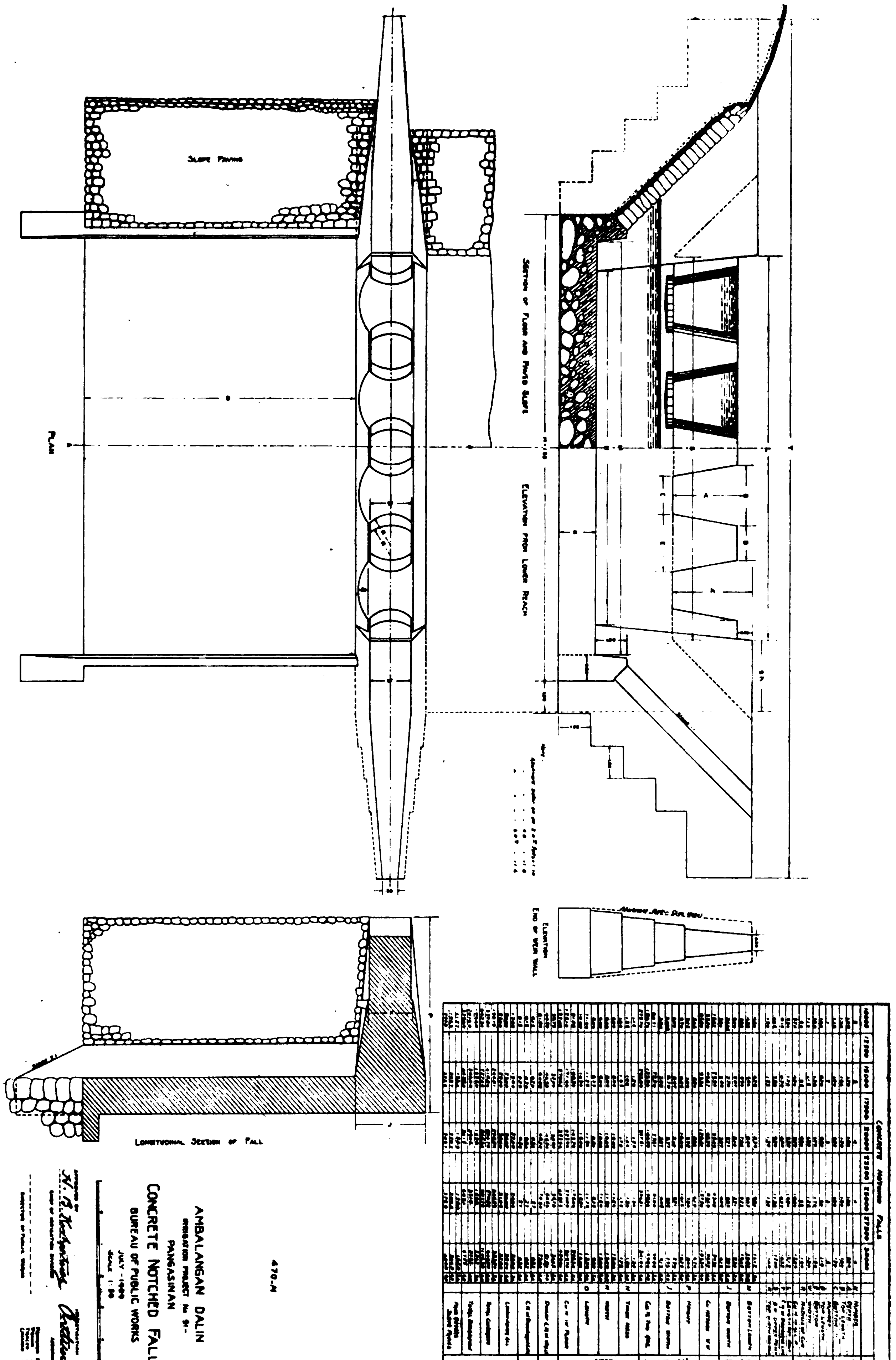
The Agno River is one of the largest on the Island of Luzon. It flows from the central mountains of Luzon in a general southerly direction, and on the plain of Pangasinan its direction changes till it flows north and enters into the Gulf of Lingayen. The mountain catchment area is approximately 1,800 square kilometers, ranging in elevation from about 150 meters to 2,000 meters above sea level. The forests within the watershed are practically untouched, and the slopes of the ravines are well covered with grass and brush. During the rainy season the rainfall on the catchment area may be very heavy and persistent during longer or shorter periods. The rain gage at Baguio shows 625 mm. for October 13th, 1908, and at this time the Agno River showed a 9 meter rise at the foot of the gorge. The river has a minimum flow of about 12,000 liters per second*, and an average flow during the rice season of about 50,000 liters per second. The maximum flood discharge of this river is estimated to be upwards of 8,000 cubic meters per second (8,000,000 liters per second). This large flood discharge was the controlling feature in the design of any structure built in the river, and hydrographic surveys finally developed a condition which would make it possible to disregard the flood effects of the Agno. Attention is invited to the plate showing the topographical map of the Agno Gorge. The river descends from the mountains in a southwesterly direction till it reaches the gorge where it is turned sharply to the left through an angle of more than 90°. The river is deflected to the left by a vertical conglomerate cliff. Some 200 meters below this cliff the river forms a rapid and drops about 4 meters in 200. The general location is such that the river cannot leave the gorge except by passing along the face of the conglomerate cliff; and it is proposed to locate the gate house on the face of this cliff as shown on the plate entitled: Gate House Location. The distorted profile in this map shows in profile the situation described above. The rapids form a natural barrier and will serve as a submerged weir. The natural condition, while not unique in irrigation engineering, is very unusual. No control of the river will be necessary as the gate house is in the deepest part of the pool above the rapids, and water can be taken directly into the conduit.

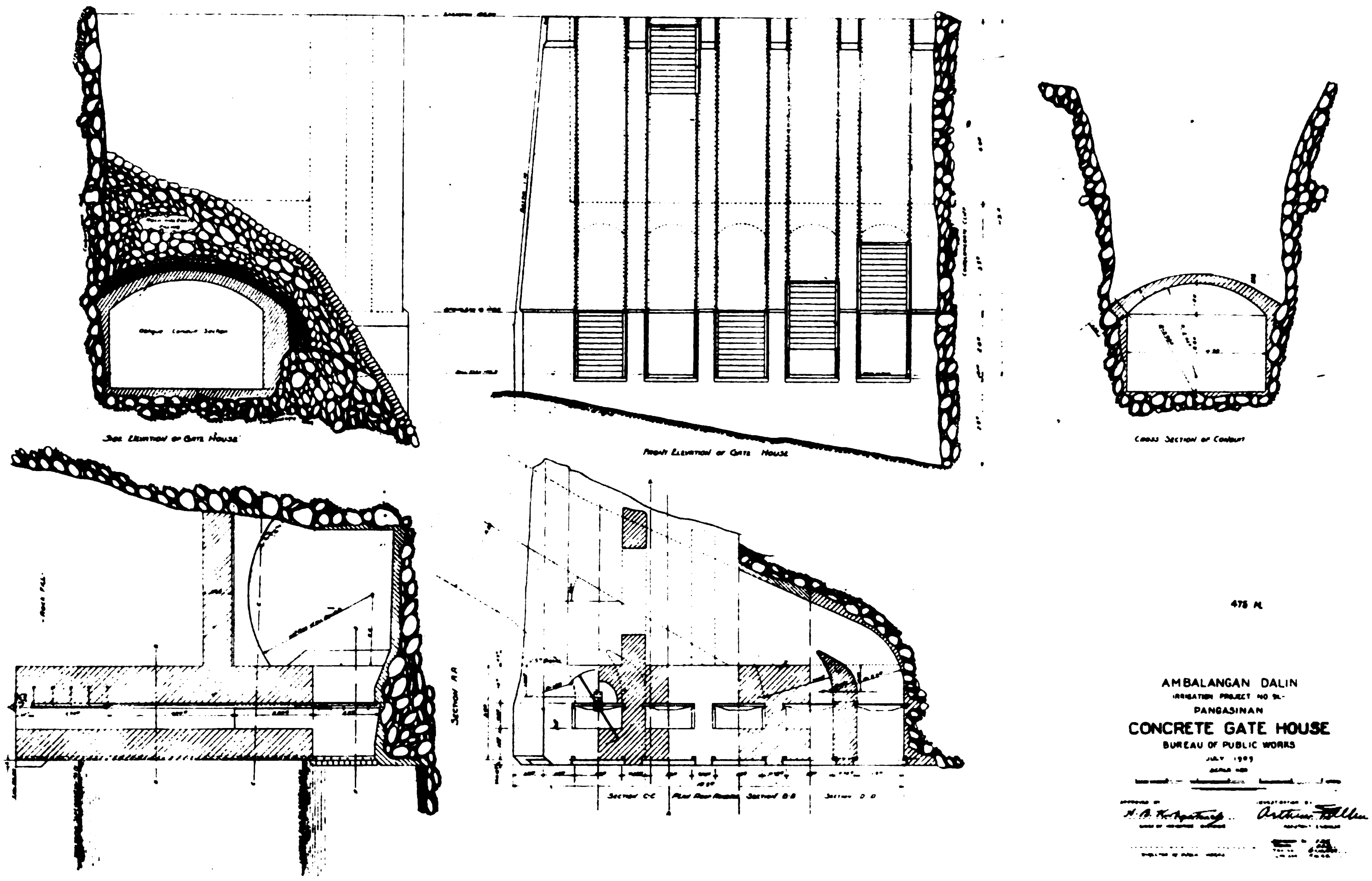
The gate house will be built against the cliff face, and is protected from the direct force of the current by the upstream part of the cliff. Its walls will be designed to withstand a hydrostatic pressure much greater than the highest flood yet recorded, and will be braced from the rear by the solid cliff. There is no question whatever but that the structure will be safe, no matter how great the flood.

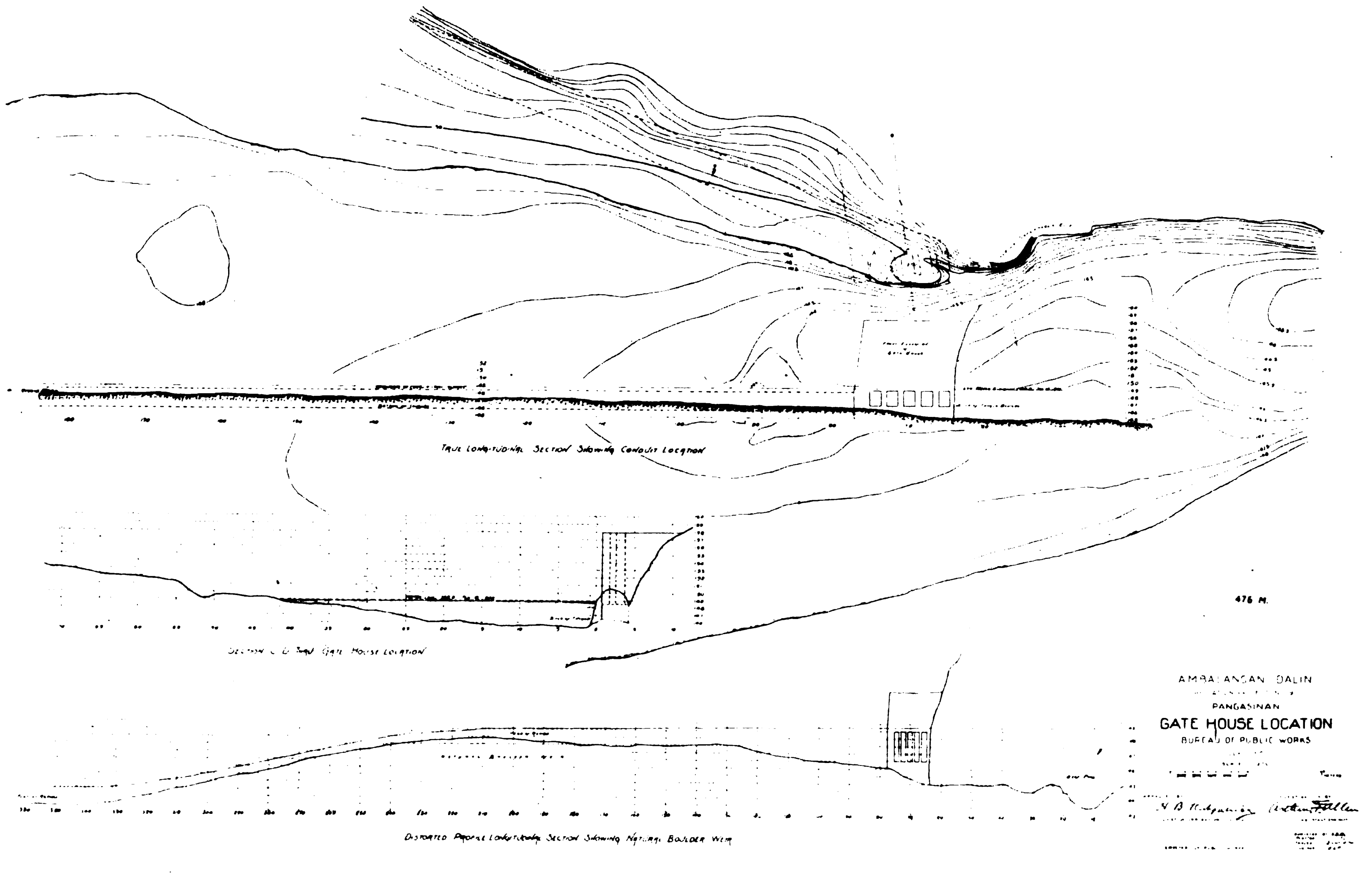
From the gate house water will be taken for 500 meters in a covered, cement lined, conduit. This leads the water away from the river to a point where the canals will not be endangered by floods. Then 3½ kilometers of main canal will conduct the water to the first distributaries. Use will be made of a great many of the present canals, and the distributaries will cover the territory shown in the plate.

The principal structures in the main canals will be falls of the notch type which are extensively used in India. The plate shows the general features of this type of fall. The notch is designed so as to permit the water to pass the falls at varying depths in the canal without checking or accelerating the velocity in the

*1,000 *liters*=1 *cubic meter*=*approx.* 35 *cubic feet.*


Slope Paving
Plan
Section of Floor and Paved Slope
Elevation from Lower Reach
Elevation End of Weir Wall
Longitudinal Section of Fall
Concrete Notched Falls
470-N
AMBALANGAN DALIN
PANGASINAN
CONCRETE NOTCHED FALLS
BUREAU OF PUBLIC WORKS
JULY 1909


Side Elevation of Gate House
Front Elevation of Gate House
Cross Section of Conduit
Section A-A
Section C-C
Section B-B
Section D-D
475 M.
AMBALANGAN DALIN
PANGASINAN
CONCRETE GATE HOUSE
BUREAU OF PUBLIC WORKS


True Longitudinal Section Showing Conduit Location
Section C-D Thru Gate House Location
Distorted Profile Longitudinal Section Showing Natural Boulder Weir
475 M.
AMBALANGAN DALIN
PANGASINAN
GATE HOUSE LOCATION
BUREAU OF PUBLIC WORKS

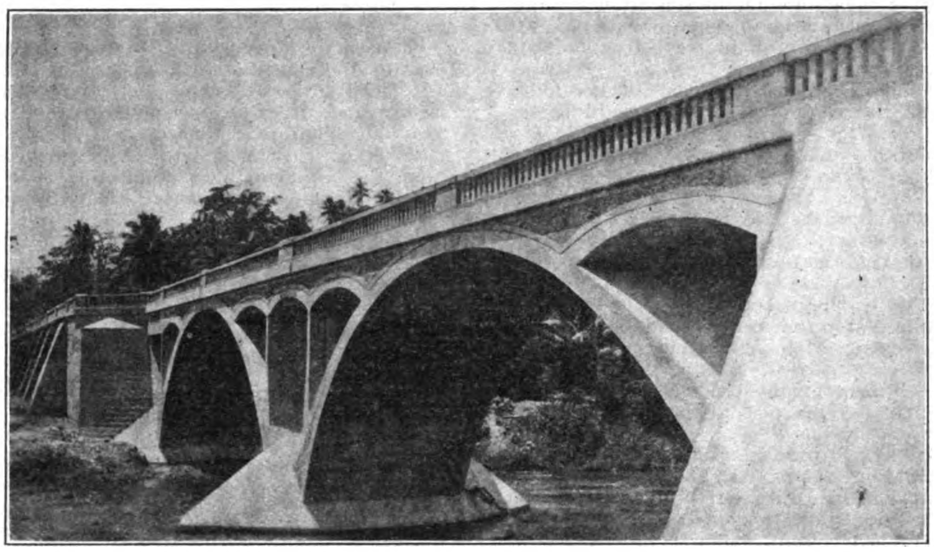
canal either above or below the falls. The power stations will be located on these falls which have a vertical drop of from 2.40 m. to 6.00 m. These structures will be built of concrete and in some cases will also serve as bridges. The main canal may be as much as 19 meters wide and have a depth of two meters, so that a number of bridges will have to be constructed.

The principal items of construction are: 8,800 cubic meters of concrete, comprising 1 gate house, 1 closed conduit, 18 falls, 7 escapes, 2 bridges; 18,030 cubic meters rock excavation, and 475,000 cubic meters earth excavation.

The estimates for this project were worked up on the basis of three different sized districts: 10,000; 20,000; and 30,000 hectares: taking 10,000; 20,000; and 30,000 liters of water per second respectively. The final recommendation was that the system should be constructed with permanent structures to take 30,000 liters per second, and canals for 20,000, to serve at first an area of 20,000 hectares. This leaves the system in shape so that it can be extended to cover 30,000 hectares at a reasonable expense. The total estimated cost of the recommended construction is ₱750,000.00. It is estimated that to extend the system to take the additional 10,000 hectares will cost ₱250,000.00 more, making a total of ₱1,000,000.00 for the entire project.

The total assessed valuation of the lands comprising this irrigation district is ₱1,814,630.00. A very conservative estimate places the increase in value of this property with a permanent irrigation system at 50%. This would give an increase in land values of ₱907,315.00. Taxes on this increased valuation would amount to ₱9,000.00 a year, and it is probable that the actual increase in value will be nearly double the above. The present production of palay (rice in the husk) is about 50 cavans (75 liters) per hectare, and the average value is ₱2.50 per cavan, making ₱125.00 the present gross return per hectare from palay. It is estimated that the minimum increase in production due to controlled irrigation will be 30%; on the above estimate the increase in value of products will be ₱37.50 per hectare per year for rice alone. For 20,000 hectares the increase would amount to ₱750,000.00 per year or the cost of the system. A water rate of ₱5.00 per hectare per year will pay all expenses of operation and repay the cost of construction within 20 years.

The final reports with recommendations have been submitted to the Irrigation Committee. The subcommittee on engineering of that committee has reported favorably on the project, and it is believed that the Secretary of Commerce and Police will authorize the construction of the project. Construction work can then be commenced as soon as the details regarding the reimbursement of funds are settled.



ANOTHER VIEW OF GOVERNOR REYNOLD'S PARABOLIC ARCH BRIDGE, ALBAY, P. I.—REINFORCED CONCRETE CONSTRUCTION

PHILIPPINE COAL

The Chief of the Division of Mines, Bureau of Science, Mr. Warren D. Smith, has issued an interesting pamphlet on the development of coal fields in the Philippines that indicates a promising future for the coal mining industry there.

Activity is confined to the fields on the Island of Batan situated off the East coast of Albay Province. Of this interest, he writes:

"We find here the coal mine of the United States Army on the west end and on the east the Batan Coal Company's property. The former is producing 80 tons per day, the latter 50 tons.

"There is a marked difference in the coals of the two fields, the coal of the Army mine on the west end being somewhat better, but more difficult to mine, while on the east end it is just the reverse. Development work has corroborated the prediction made in 1905 that considerable faulting would be found on the west end of the island. This may seriously embarrass the operations there. At any rate, it will call for the most experienced engineering ability. As this work is a matter entirely separate from any civil or private enterprise, I do not feel called upon to discuss the situation further.

"An important feature in the growth of coal mining in the Islands is the coaling of the U. S. A. transport *Dix* for her trip to Seattle. During the past year the interisland transport *Wright* has been using this coal with good results, but the *Dix* by taking on 2,500 tons in April marked the first use of Philippine coal on a trans-Pacific steamer.

"The East Batan Coal Company's mine is the first since the American occupation to furnish coal to the general market and the first successful coal property in the whole history of these Islands. This mine was visited in March, 1909, by Mr. H. G. Ferguson, geologist of this Bureau, to whom Mr. Daniels, the superintendent, kindly furnished the information given in this paper.

"The property is situated in the eastern part of Batan Island, which is just 19 kilometers east of the port of Legaspi in the southern part of Luzon.

"This mine is located within a few hundred meters of the barrio of Batan and approximately 210 meters from the sea. The outside plant in March, 1909, consisted of one 30-horsepower. Sedgwood doubledrum hoisting engine and boiler. The cars are hoisted from the tunnel and run down by gravity on a small track to the sea, where the coal is loaded into lighters, in which it is conveyed out to deep water beyond the reef to the ship's side. A new wharf, 91 meters long with 7 meters of water at low tide alongside, is nearly completed. A stock pile will be placed about 300 meters from the wharf end and will be located at about 600 meters from the tunnel. Two small steam locomotives are used now.

"Coming now to the underground work, the coal seam varies from 1.67 to 1.75 meters, with 7 to 12 centimeters clay parting 55 centimeters from the roof, and dips 13° to the north. The roof is a hard, sandy clay and stands remarkably well with only a slight tendency to slap off in the first half meter.

"There are two adits and three air shafts. The system adopted is the room and pillar, with the rooms running up the dip 4.5 meters wide, and 90 to 120 meters long, with 15-meter pillars. The coal is sometimes worked 15 meters beyond the timbering. The west gallery is 243, and the main tunnel 198 meters.

"Wire haulage is used in the main tunnel, but cars are pushed by hand in the rooms. Rails are soon to be laid right up to the working face.

"The coal is easily broken from the face by working up the dip. Coal cutting machines are not required. The coal breaks evenly from the clay and possesses a good cleat. All sorting is done underground. Japanese pickers were originally solely used, but the natives have been trained and have been found entirely satisfactory. They can win from 5 to 7 tons per day. Japanese are now used mainly for timbering and advancing main tunnels.

"The scale of wages is as follows:

Japanese foremen	₱2.50
Filipino pickers	1.20
Filipino helpers	1.00
Surface laborers	.80

"There was some difficulty with the labor at first, but now there is none. The Filipino laborers are all Bicols from the surrounding country, and have proved steady workers.

"Narra has been found to be most satisfactory timber available.

"Preliminary work was begun in October, 1906, in this mine. The first shipment of coal was 77 tons in the bunkers of the San Juan. The production up to date amounts to 15,000 tons approximately. At present only one shift is working, giving a daily output of 45 tons.

"In this district only the uppermost seam is being worked. From the general relations which obtain over Southern Luzon and the Visayas, I feel safe in predicting the discovery of at least two more and perhaps considerably thicker seams below this one. I feel confident that the entire eastern end of this island is underlain by workable, merchantable coal.

"A good feature in the working of this mine is the absence of dust. Dust has been found to be one of the most potent factors in mine explosions. So large a part does it play that in Europe all dry coal mines are required by law to be constantly sprinkled. Here, of course, this is not necessary.

"In order to show in as concise a manner as possible the steaming value of this coal, I reprint here the statements of the engineers of two coastguard cutters, the Busuanga and the Negros.

"*Relative merits of Australian and Bataan coal based on tests during two months' use of each, cutters Busuanga and Negros.*

	Australian.	*Batan.*
Miles steamed (two mos)	5,662	5,442
Tons coal consumed steaming	229	348
Total cost of coal consumed	₱3,744.15	₱2,088.00
Cost per mile steaming	.66	.38
Cost per 1,000 miles steaming	660.00	380.00

"Compared with Australian coal, Batan coal burns freer, requires light and frequent firing, and but little attention. It gives hardly any soot in tubes and connections and little clinker. It disintegrates very rapidly after being spread on fires and quite a percentage is lost if used on coarse grates.

"It is seen that about 50 per cent more of the Batan coal is required for a given run, but the cost is just a trifle more than half that of the Australian, so that when bunker space is available a saving can be made by using Batan coal.

"On Cebu Island the mine of the Insular Coal Company was in operation during a part of the year. At present, however, the mine is closed down, though the company is hoping to reopen it in the near future."

FAR EASTERN RAILWAY NEWS

THE ANTUNG-MUKDEN RAILWAY.—The following agreement has been reached in regard to the reconstruction of this railway according to official announcement:

1. The same gauge as that of the Peking Mukden railway shall be adopted.
2. Both Japan and China shall recognize and approve on the whole line as already surveyed and agreed to by the commissioners of both Governments, but the location of that portion of the line, from Chen-Hsangtung to Mukden, shall remain to be decided by mutual conference between the two countries.
3. From the date when the memorandum is signed, negotiations for purchase of land and for adjustment of all other details shall be instituted.
4. From that time, the day following the signing of memorandum, this is from the day after the negotiations above mentioned are instituted, the work of the reconstruction shall be accelerated.
5. China shall instruct local officials along the line to give every facility regarding the execution of the work.

The traffic on this line was interrupted last month by serious inundations.

THE PAKNAM RAILWAY COMPANY LIMITED.—The report for the half-year ended June 30th gives the information that the gross receipts were Ticals 90,900.82 and the expenses Ticals 33,519.53, leaving a profit of Ticals 57,519.53. The mileage for the term is placed by the report as 31,029 kilometers and 313,925 passengers were carried. During the 18 years' history of this company dividends to the amount of 158.03% have been paid the shareholders.

FORMOSAN RAILWAYS.—The government railways in Formosa include about 271 miles of line, the main road connecting Takow and Taihoku, a distance of 228 miles, the balance being branches from Takow to Kyukyakudo, a distance of 10 miles; from Taihoku to Keelung, 18 miles, and from Daitotei to Tamsui, a distance of 14 miles. A line is being surveyed from Taito on the East coast to join the main line on the west coast and its construction is expected to cover a period of over seven years. Besides these lines there are still in operation about 160 miles of narrow gauge, coolies being employed as motive power. These run into many isolated districts and formed the earliest means of transportation. At one time they stretched from one end of the island to the other. Then there are the sugar estate lines of a broader gauge than the coolie lines, the motive power being bullocks or steam. There is over 350 miles of this track of which about 90 miles may be used by the public.

STEAMER CONNECTION WITH CHINESE RAILWAYS.—The proposal of the Board of Posts and Communications made to the China Merchants Steam Navigation Company to arrange connections with the Peking-Mukden Railway at Newchwang, the Peking-Kalgan at Tientsin and the Shanghai-Nanking and the Peking-Hankow at Shanghai is being favorably considered. The proposal includes the sale of tickets by the company to all points on the different lines.

BURMA-YUNNAN PROPOSED RAILWAY.—With the conclusion of the loan agreement which assures the early construction of the Szechuan-Hankow line, the construction of a railway connecting China and India is again being discussed by the British Press. The most favorable scheme is the construction of a line connecting Lashio to Kunlong by the Burma Government. Then the construction of a line from Kunlong to Youchou-fu, a distance of 145 miles, which would cost about $10,000,000 by the Yunnan railway to run along the Yunnanfu-Talifu line and meet the French line at Yunnanfu.

THE HSIN-NING RAILWAY EXTENSION.—It is reported from Peking that permission has been granted to extend this line to Humen thus making Tungkiang more accessible to trade.

F. M. S. RAILWAYS.—The total amount under capital account for open line of the Federated Malay State Railways at the end of 1908 was $46,000,000, approximately, and the number of miles open to traffic 468. The working expenses were 67.81% of the receipts.

JAPANESE ROYAL FAMILY'S INTERESTS IN PUBLIC UTILITIES.—The shares and bonds in banks, railways, steamship companies, etc., owned by the royal family of Japan are valued at $79,680,000, and lands and houses at about $200,000,000, to which should be added imperial palaces and other buildings and grounds in 253 places.

THE CHANG-CHOW-AMOY RAILWAY.—The delay in the construction has been the subject of official notice at Peking and recently orders were issued that the construction now in progress in a dilatory manner should be pressed. This line, when completed and extended to join the different lines connecting with the Peking-Hankow, will connect Amoy by railway with Europe. The line proposed will ultimately be connected with the Kowloon-Canton, Canton-Hankow, Shanghai-Nanking when continued North and South.

THE ANTUNG-MUKDEN RAILWAY RECONSTRUCTION.—The report of Mr. Palen, Acting Commissioner of Customs at Antung, is of interest in reviewing the proposed line as contemplated reconstructed by the Japanese Government. He says in part:

"Without question that feature of Antung's commercial horoscope which reads truest is the prediction of growing importance to follow upon the conversion of the light railway to Moukden into a standard gauge road and the construction of the bridge across the Yalu, which will link up the Korean system with the iron roads of Asia and Europe. The Japanese officials of the South Manchuria Railway Company state that the loan of £2,000,000 recently floated in London will be immediately devoted to this reconstruction work and that the final surveys for the new roadbed are already being made. The general plans sanctioned provide for a northern terminal at Sukiatun, the station on the main line of the South Manchuria Railway, 10½ miles south of Moukden, which also serves as the junction with the line to the Fushun mines. This will give the road a total length of 170 instead of its present 188 miles, and will also save the expense of another bridge across the Hun River. It is likewise proposed, in order to cater to passenger traffic, to retain as much of the scenic beauty of the present line as engineering considerations will permit. The railway officials say that active work will be started in the early spring and that the remodelled line should be completed in three years, that is, during the spring of 1912. From the Korean Railway officials emanates a simultaneous report with reference to the proposed bridge, to the effect that operations thereon will be begun after the summer rainy season has passed, and that the bridge should stand complete by the time the new Antung-Moukden rails are laid."

The line will cost approximately yen 24,000,000. There will be tunneling covering in all a distance of about six miles divided into 30 sections. There will be about 175 new bridges aggregating in length about 4.5 miles. The line will be dotted with about 20 stations. It is estimated that in traveling from Mukden to Moji, when the line is completed, a saving of 31 hours will be made compared with present speed.

For construction purposes the line will be divided into 14 sections and the reconstruction will cover a period of less than three years. It is proposed to manufacture all the steel in Japan and Japanese sleepers will be used. Labor is to be secured along the line. The materials and equipment of the old line will be utilized by the South Manchuria Railway Company in connection with the operation of the Yentai and Fushun Collieries.

INDIAN RAILWAY PROJECTS.—The Railway Board have sanctioned surveys being made by the Agency of the Burma Railways Company for lines of railway on the metre gauge in the Irrawaddy Delta as follows: (1) Henzada to Pantanaw, 65 miles, (2) Ngathaingyaung to a suitable point on the Myogwin-Kamauksu, 27 miles, (3) Kyontani to Ngathaingyaung, 27 miles, (4) Henzada to Akyaw, 28 miles total 47 miles. These surveys will be known as Irrawaddy Delta Surveys.

The Secretary of State has sanctioned the construction, when funds are available, of a railway on the metre gauge from Thazi to Yawnghwe in the Southern Shan States, a distance of 100 miles. The main object of the line is to open up and develop the fertile valleys and plateaus of the Southern Shan States, the progress of which has been much retarded for want of communication.

Sanction has been accorded to an estimate for the final location survey of the Hosur extension of the Merappur-Dharmapuri Railway. Also sanction has been accorded to an estimate for the construction of a narrow gauge tramway at Perambur Works, Madras and Southern Mahratta Railway.—*Railways.*

OLD MANCHURIA ROLLING STOCK.—The Nippon Sharyo Seizo Kaisha and the Kawasaki Dockyard have been awarded the contract for the repair and reconstruction of the cars and locomotives included in the old rolling stock of the South Manchuria Railway and which was removed to Japan. Besides this repair work, it is announced that these firms have received contracts for the construction of 200 passenger and other cars to be completed during the year. This work as estimated will cost about yen 2,000,000.

CONSOLIDATION OF CHINESE RAILWAYS.—The President of the Board of Communications is interested in the consolidation of the management of the Peking-Mukden and the Peking-Hankow Railways. He has appointed a committee to make an investigation into the feasibility of the scheme.

JAPANESE RAILWAY SLEEPERS FOR AMERICA.—The Santa Fe Railway recently ordered a shipment of 170,000 sleepers of Japanese oak for trial on the Kansas Division. The cost laid down is about $2.00, but owing to the durability of the timber which is said to last for 25 years, these sleepers are said to be more economical than American timbers.

THE KIRIN-CHANGCHUN RAILWAY.—The following memorandum was recently given out officially in regard to an agreement reported to have been concluded between the Japanese and Chinese Governments with reference to this proposed railway:

1, that the Engineer-in-Chief and Chief Accountant shall be Japanese; 2, that the agreement shall hold good for twenty-five years, during which period the line shall be worked by the Chinese and Japanese jointly; 3, that the cost of the railway, which is estimated at Tls. 2,500,000, shall be entirely borrowed from the Japanese and the interest thereon shall be five per cent. per annum, computed from the day when the whole sum is paid to the Chinese; and 4, that the receipts of the railway company shall be deposited with the Yokohama Specie Bank in China.

STANDARD GAUGE FOR JAPAN'S RAILWAYS.—The announcement is made semi-officially, that the Japanese Railway Bureau is contemplating the widening of the railways in Japan and that an announcement of the plans of the Bureau will be made during the present year. This extensive scheme of reconstruction was contemplated at the time that the nationalization was originally proposed and it is thought that the plans have sufficiently advanced to undertake it.

THE CHEKIANG RAILWAY.—President S. C. Fang is in receipt of a very complimentary report on the construction of this railway by an American engineer who has been studying conditions and railway construction for his principals in the United States. He directs special attention to the cost of Tls. 60,000 a mile, which is much less than western cost, while the character of construction he reports superior to the initial construction on American lines. On bridge construction, the work satisfied him as being along the latest and best engineering ideas. He directed particular attention to the cheapness of the earthwork which he claimed cost about one-tenth of the outlay in the west. He paid a high compliment to Mr. T. C. Pu, the executive secretary, as an engineer.

SOUTHERN SECTION OF THE SIAM ROYAL RAILWAYS.—The Ministry of Public Works has been directed to continue the work of construction on the Petchaburi Railway southward to Ra-ge. It will be known as the Royal Southern Railway.

KOWLOON-CANTON RAILWAY CONSTRUCTION.—The latest reports from Hongkong are to he effect that construction on the foreshore between Hunghom and Tsimshatsui is progressing very favorably and that from indications everything will be ready for the opening of the line next year. A temporary line will no doubt be operated as soon as the filling and leveling is completed and until the permanent way is under way. The authorities have decided to construct modest stations until the results of operation are made definite.

TRANS-SIBERIAN FREIGHT TRAFFIC FROM THE FAR EAST.—The Russian Ministry of Finance is reported to have authorized the exemption from duty of all freight between China and Western Europe from a frontier station on the Siberian Railway to any frontier station in European Russia. It is expected that this will encourage the transport of goods over the Siberian lines.

SOUTH MANCHURIA RAILWAY WINTER FREIGHT SCHEDULE.—This company proposes arranging the schedule so as to increase the carrying capacity of the road to 8,000 tons a day. This is an increase of about 1300 tons daily.

KOREAN RAILWAYS.—The estimated cost of construction of the Seoul-Gensan and the No-Nam Railways is placed at yen 45,000,000 and arrangements are to be made to have the sum raised so as to be redeemable in six years.

MONGOLIA TRUNK LINE.—A scheme is being entertained by the Ministry of Posts and Communications to construct a trunk line connecting Ili and Tsitsihar which will serve as a main line for feeders from Mongolia and Manchuria.

KIANGYIN-WUSHI MILITARY RAILWAY.—The Board of War has taken up this proposed construction with the Board of Communications.

PEKING-KALGAN RAILWAY EXTENSION.—The Board of Communications has recommended the extension of this line to Suiyuanhing in the extreme north-western point in Shansi by way of Tatungfu and Sopingfu. The cost is estimated at approximately Tls. 60,000,000 and it will take eight years in its construction. It is recommended that the cost will be supplied from the earnings of the Imperial North China Railways.

KIRIN-KUANGCHENGTZE RAILWAY AGREEMENT.—The following is semi-officially reported as being the text of the agreement entered into August 18th at Tientsin between Japan and China in regard to the construction of this line:

(1) The South Manchuria Railway Company agrees to advance to the Chinese Government a sum of Yen 2,250,000 (the actual amount receivable by the Chinese Government is 93 per cent.), half the amount of the expenditure required for the construction of the Kirin-Kuangchengtze Railway, and also a sum of Yen 320,000 (93 per cent. receivable by China), half the amount of the expenditure required for the reconstruction of the Hsinmintun-Mukden Railway.

(2) The money to be advanced shall be paid in Tokio within one month from the date of the signing of the agreement.

(3) The Chinese Government, with as little delay as possible, shall appoint a commissioner to receive the money.

(4) The money earned by the Kirin-Kuangchengtze Railway shall be deposited with the Manchurian branch of the Specie Bank, the amount so deposited being exclusively in currency accepted by the bank.

(5) The Specie Bank shall pay interest on the money deposited at the same rate as is paid on general deposits.

(6) The Chinese Government agrees to repay the money advanced for the construction of the Kirin-Kuangchengtze Railway in twenty years after outstanding five years, and the money advanced for the reconstruction of the Hsinmintun-Mukden Railway in eighteen years from the year in which the agreement was signed. In each case, the payment is to be made in half yearly instalments commencing in the first year of the first year of the periods mentioned.

(7) The money in this agreement shall be paid in Japanese currency.

(8) In the event of either of the parties infringing the agreement, the arbitration of a third party shall be sought.

OBSTACLES TO TRADE WITH CHINA

CONSERVATIVE OBJECTIONS TO MINING IN THE EMPIRE.

(From a Special Correspondent.)

The history of the intercourse of the West with China has been nothing but a record of a continuous struggle to open up land and develop trade with a people who seem imperturbable to all influences from outside. And in a journey through China nothing more than this strikes the traveller, a studious discouragement of mining enterprise.

In nearly all the provinces it is known that the presence of minerals offers opportunities for their development, and even in Szechwan, the great agricultural province of the Empire, among the minerals are gold, silver, cinnabar, copper, iron, coal and petroleum, and yet they are not worked much, and if at all merely by the bungling native methods. Perhaps, however, it will be Szechwan that will become opened up in this respect more speedily than any other province, should the steamship service for the Upper Yangtze, said to be on foot to start in October next, become an accomplished fact.

The Chinese Government has, however, a mistrust which is traditional to all enterprises carried out by private initiative. It is nothing but a scandal that at Ichang, 1,000 miles from the sea, from Shanghai, steamers should be driven to burn Japanese coal when Ichang is situated on what is thought to be one of the richest coal fields in the world. It is, it is true, worked to a small extent at Patung, in the Kweichou and Hsingshan districts on the border of Szechwan, in the Itu and Chihchiang districts, and at Ching-men-chou, but the output is not one-half what it would be with foreign methods. Much of the coal is sulphurous, as I found out the other day when I had the privilege of going over one of these Chinese mines.

There is without doubt a good deal of iron over a wide area throughout the Empire, one of the most successful mines worked by the Chinese being that at Kuanpao in the Ch'angyang district, about a hundred miles west of Ichang; but, again, the total output is small, as local needs around the district of which Ichang is the centre are supplied from Hunan. The province of Kwangsi is known to offer a great field for mining also—the great possibilities are, however, unproved to any extent. However, a geologist stated a short time ago that within one square mile he found, by boring, coal, iron, copper and lead, a richness probably unsurpassed by many individual square miles in the world. In addition to these minerals, others known to exist are gold, silver antimony, asbestos, bismuth, and so on.

The following résumé of the latest approximate figures procurable and the returns in 1867, the first year of the Chinese Imperial Customs and more recent times, is interesting.

Metals in 1867 were valued at 1,630,351 taels, a little over two per cent of all imports, and a couple of years ago at roughly 46,500,000, no less than ten per cent of the whole. Copper imports reached 11,150 piculs (198,017 taels), and now they are not much less than 986,000 (say 32,000,000 taels.) Lead (57,780 and 144,000 piculs) is wanted chiefly for packing tea, and tin (32,000 and 55,000 piculs) chiefly for making tinfoil and those paper simulacra of silver bullion which are offered so profusely in religious worship, specially at the ancestral tombs. Tinned plates in 1867 amounted to 1,744 piculs, and to-day this figure is swelled to something approximating 182,500 piculs, in addition to a considerable quantity of second-hand plate coming as lining tin cases containing piece goods, kerosene oil and other commodities. China is a land of poverty and thrift, and the quantity of this latter is estimated at not less than 500,000 piculs a year. If it is to be taken that the index of industrial progress is the consumption of iron and steel, then China is after all moving on in the great progressive march of the world. Imported into China in 1867 were 7,000 tons, and this has gone on now to the tremendous figure of no less than 162,000 tons, and probably more. This is extremely satisfactory, but it contains another indication of the thriftiness—and poverty—of the people. This last figure is probably made up by almost one-half of old iron, plate cuttings, and so on, discarded from Western markets, coming mainly from Great Britain.

So it will be seen that the country is going ahead in the consumption of minerals and metals, but it is the one thing against her many admirable commercial capabilities that she keeps back mining. Trade in general, and mining in particular, cannot be left to take care of themselves in China as they could be in the West, and I think it is to the interest of all Governments now concerned—and very few are not; China is safeguarded with so many international treaties that no country can prey upon her if they would—in the improvement of trade and the prosperity of mining, railroads and manufactures to do their utmost to bring about an alleviation of the prevailing conditions. I do not lose sight of the fact that Britain especially has been pounding away at the Chinese Government more or less successfully for the last thirty or forty years—notably since the Chefoo convention in 1876—and nothing seems to have come of it, but whatever progress has been made has been due to pressure, and only by pressure will any concession be obtained. In a conversation with an enlightened Chinese official the other day, he gave it as his opinion that to do anything the pressure must be kept up. We all know how little the Chinese, despite the great "awakening" now being talked of, will do of herself; she will do absolutely nothing. However, it is generally thought that it is merely this enforced pressure by foreign Governments upon the Chinese officials—who *can* be urged—to enforce them loyally to carry out their obligations to promote trade and open their land, that any reform can be looked for. It must be remembered that it requires an energy to do this in spite of disheartening effects of the perpetual procrastination of the Government and of the people.

Should this come about, there will be in Asia such a field for the outlet of European and American capital and brains that China must forge ahead and soon become what is predicted for her two hundred years to come—the greatest nation in the world. But as it stands no foreigner is allowed to have much to do with the mines and the natives are prevented from working on a large scale even if they would, owing to the dread the mandarins have to any assemblage of unruly men such as miners are supposed to be. So the mineral wealth of the country lies undeveloped, while thousands of able-bodied men go about begging their bread. And another very weak excuse is that the minerals would be used up.

FAR EASTERN COMPANY REPORTS

SINGAPORE COLD STORAGE CO., LTD.—This company paid a dividend of 10% for the year.

MAATSCHAPPIJ TOT MIJN-, BOSCH-EN LANDBOUWEXPLOITATIE IN LANGKAT.—A third quarterly dividend of Tls. 12.5 for 1909 account was payable on September 15th.

ILOILO ICE AND COLD STORAGE COMPANY.—This company paid a dividend of 22.25% for the six months ended June 30th

THE TAINAN SUGAR MANUFACTURING CO.—The following accounts were submitted and recommendations for distribution of profits approved:

	Yen.
Net gains	500,200
Brought forward from previous term	18,666
Total	518,869
To legal reserve	27,000
To redemption fund	12,000
To special reserve	80,000
To bonus	80,000
First dividend (10% per annum)	77,933
Second dividend (10% per annum)	77,933
To pension	10,000
Carried forward	46,000

UNITED ASBESTOS ORIENTAL AGENCY, LTD.—This company paid a dividend of 15% on ordinary shares for the 12 months ended May 31st, 1909.

SIAM STEAM NAVIGATION COMPANY, LTD.—This company paid a dividend of 5% for the last half year and carried Ticals 10,000 to the Reserve.

MEIJI FIRE INSURANCE COMPANY.—This company paid a dividend of 2% for the half year term. The Nippon Fire Insurance paid a dividend of 15% per annum for the term.

HONGKONG HOTEL COMPANY, LTD.—The profit for the half year ended June 30th, 1909, amounted to $19,272 out of which a dividend of 2.40 a share was paid on the old shares and 40 cents on the new shares.

THE SABAH STEAMSHIP COMPANY, LTD.—The annual meeting of this company was held August 26th. The profit for the year amounted to $6,235.13 out of which a dividend of 6% was paid.

SHANGHAI COTTON MANUFACTURING CO., LTD.—The profit for the term was Tls. 183,853, out of which a dividend of Tls. 7.50 a share was paid, Tls. 22,676 were written off for depreciation and balance of Tls. 24,210 were carried forward.

HONGKONG ELECTRIC TRACTION COMPANY, LTD.—The net profit for the year amounted to £9,506, which added to balance forward from former term made £10,036 which was carried forward.

HONGKONG ICE COMPANY, LTD.—This company declared an interim dividend for the half year ended June 30th of $2 a share payable August 25th.

CHINA LIGHT AND POWER CO., LTD.—The following is the report submitted at the meeting of shareholders on September 11th:

The balance at credit of Profit and Loss Account is $446,483.42, which it is proposed to deal with as follows, viz:—To place to Reserve Fund $400,000.00, and carry forward to next account $46,483.42.

The concession for lighting Canton together with the Factory, property and material there, was sold to the Ta Ching Kwang Tung Electric Supply Co., for $1,330,000.00. Payment was completed on 31st July, to which date the present accounts are made up.

It is obvious from comparing the figures of the last account with those now laid before you that, owing to circumstances beyond our control, we were losing ground at Canton and, in view of this and other considerations, we decided to avail ourselves of the opportunity of disposing of this branch of the business at what we consider a fair price. We shall now have to devote all our attention to the development of the Kowloon Factory.

Capital.—It is not proposed to pay a dividend, but to make a return of capital to the extent of $5.00 per share, or $500,000.00 out of funds in hand, but this cannot be done until the necessary resolutions, which are now being drawn up, have been passed and the consent of the Court obtained.

Consulting Committee.—In accordance with the Articles of Association Sir Paul Chater, C.M.G., Dr. J. W. Noble, and H. P. White Esq. retire but offer themselves for re-election.

Auditors.—The accounts have been audited by Messrs. W. H. Potts and A. O. D. Gourdin, who are recommended for re-election.

JAPAN INDUSTRIAL BANK.—The following is the report and recommendations submitted for the term:

THE ACCOUNTS	Yen.
Profit in this half year	2,112,902
Transferred from last half year	63,823
Total	2,176,725
Losses in this half year	1,251,277
Net Profit	925,448
Reserve fund for losses	109,000
Reserve fund for losses balancing the dividends	27,000
The First Dividend (5 per cent, per annum)	406,250
Bonus for the directors	25,000
The Second Dividend (3 per cent, per annum)	243,750
Special Reserve fund	50,000
Transferred to next half year	64,448
	925,448

HOKKAIDO COLONIZATION BANK.—The following is the statement of accounts and recommendations made for the half year:

	Yen.
Receipts	219,950
To reserve against loss	22,000
To reserve for equalization of dividend	11,000
Special reserve	310,000
Dividend (9% per annum)	112,400
Carried forward	44,550

BANK OF INDO CHINE.—A dividend of 25 francs per share for the half year was paid making in all 50 francs for the year against 47.50 for 1907.

SINGAPORE ELECTRIC TRAMWAYS COMPANY.—After charging out debenture interest, depreciation and royalty out of a surplus of £24 294, the accounts for the year show a loss of £4,040.

THE HONGKONG AND WHAMPOA DOCK COMPANY, LTD.—The ordinary half-yearly meeting of shareholders in the above company was held at noon on Aug. 23, in the company's offices, Queen's Buildings. The Hon. Mr. W. J. Gresson presided and there were also present Sir Paul Chater, Messrs. H. P. White, D. W. Craddock, W. Helms, J. W. Bandow, E. G. Barrett, S. Silverstone, H. A. Siebs (directors); W. Wilson (Acting General Manager), G. A. Caldwell (Acting Secretary); H. W. Slade, W. E. Clarke, J. Cox-Edwards, H. G. White, A. Ough, D. Macdonald, E. C. Wilks, W. H. Wickham, J. A. Chinoy, Choa Leep Chee, J. W. C. Bonnar, R. Mitchell, A. V. Apcar, J. P. Braga, H. Percy Smith, Ho Fook, K. Sayce, Ho Iu, Cheung Pui Kai, H. M. H. Nemazee, Chau Siu Ki, etc.

The Acting Secretary having read the notice convening the meeting, the Chairman said:—Gentlemen, the report and accounts having been in your hands for some time, with your permission I will follow the usual custom and take them as read. Your Directors regret the unsatisfactory result of the six months' working, the profit earned being less than for any period since the latter half of 1889. This unfortunate result may be attributed to the keen competition now experienced, and the consequent narrowing of margins of profits, also to the prevailing depression in the shipping trade. The total tonnage of merchant ships and men-of-war docked during the period under review shows a falling off of some 165,000 tons as against the previous half-year. The net profits for the six months ended 30th June, 1909, amount to $76,609.93, as compared with $261,981.53 for the previous half-year and $274,577.68 for the corresponding period of 1908. Including the balance of $387,078.77 brought forward from last account, and deducting Directors and Auditors' fees, we have available for appropriation the sum of $420,162.36, out of which your Directors propose, subject to your approval, to pay a dividend for the half-year of 3 per cent., or $1.50 per share, absorbing $75,000.00, and carry forward the balance, $345,162.36 to new account. Certain instalments having been received on account of work in progress, the item "sundry creditors" is higher by some $90,000.00 than in the last account, while "sundry debtors" is less by some $95,000.00. The value of material on hand shows a further reduction of about $66,000.00. The whole of the Company's buildings, docks and plant have been kept up in a state of thorough working order, and the addition of a few up-to-date machine tools at Kowloon Dock will increase the efficiency of the establishment. It has been necessary to relay the permanent way throughout the yard at Kowloon, substituting heavier rails for those previously in use, which experience proved to be too light; the cost, $7,853, has been paid for out of revenue.

Reorganization.

Since we last met, we have received Mr. Dyer's report and after careful consideration of his recommendations, some progress has been made which, your Directors trust, will in the future result in the more economical working of the Company, and at the same time, by greater efficiency and the adopting of more modern methods in our system of book-keeping and allocation of departmental charges, enable us with greater accuracy to arrive at the actual cost of production of all articles turned out at our works, and thus place us in a better position to compete for all work that may be offering. Mr. Mitchell, a very old servant of the Company, tendered his resignation which was accepted, and he left the Colony in April last. Your late Secretary, Mr. Rose, had an agreement running on until November, 1911: this has, by mutual consent, been cancelled, by a payment to Mr. Rose, with which we trust he is satisfied, and that you, gentlemen, will approve of our action in this matter. To replace the gentlemen just referred to, we have engaged, as Chief Manager, Mr. Robert Morton Dyer, for a period of three years, with our option of renewing for a further two years. Mr. Dyer will select and engage, on terms agreed upon by your Directors, a Secretary who is thoroughly conversant with the book-keeping, time-keeping and costing of a shipbuilding or engineering business. In the accounts before you under this heading you will observe that there has been an expenditure of $37,776.34. This includes Mr. Dyer's salary and expenses for coming out and reporting on the affairs of the Company, the payment to Mr. Rose referred to, and Mr. Mitchell's passage money to England. Now, gentlemen, you may well feel anxious to know in what way you are to benefit by this expenditure. It is proposed to move the Head Office over to Kowloon, retaining on this side in less costly premises one senior and one junior clerk, with the Compradore and staff. It is considered that a great deal of the work hitherto done in the Hongkong office is superfluous, and that by the amalgamation, a considerable saving will be effected. There are also several changes contemplated in the

management of the various docks all tending towards economy, and we have in view a reduction in expenditure of from £5000 to £5500 per annum. The only further known payment is that of some $25,000 for lengthening and providing increased office accommodation in the present Drawing Office at Kowloon, but as this is a permanent improvement, it can properly be added to the book value of Kowloon Dock. There is one further matter to which I must refer, and that is the valuation of our Stock. Your new manager is of opinion that it is necessary to write down values as they at present stand in our books, they having hitherto been based on cost. Your Directors, recognising that this is a matter of primary importance, have arranged with Mr. Finlay Miller to go through the Stock in conjunction with our new store-keeper recently arrived from England, and value it item by item. This work is now in progress but, as you will readily understand it is a big undertaking and must necessarily occupy time. In the past, Stock has only been valued at the end of each year. We regret not having the figures to place before you at this meeting, but on Mr. Dyer's return in October next they will be submitted to him, and I promise you, should any adjustment be found necessary, it will be carried out before we come before you with our accounts to the 31st December next. Since Mr. Mitchell's departure, Mr. Wilson has been acting as Chief Manager, and your Directors inform you with regret that he has made up his mind to retire in a few months' time. I gladly take this opportunity of thanking Mr. Wilson for the whole-hearted way he has carried on the work, and to wish him good health and prosperity wherever he may elect to settle. Gentlemen, I have endeavoured to make the position clear to you, but should any shareholder require further information, I shall be pleased to afford it to the best of my ability.

No questions were asked and the Chairman proposed the adoption of the report and accounts as presented.

Mr. Slade—I regret that the report which I have now the pleasure to second is not a more satisfactory one, but I do not think anyone can have looked for anything better. The depression in trade and the keen competition which we have had to encounter are evidenced by the deficiency of 165,000 tons of tonnage entering the Docks as compared with last half year. I hope, however, that this may prove the Company's low water mark and that from now on we may see a gradual but continued improvement. I am led to this hope by what has been told us regarding the reorganization scheme. I myself, like many other shareholders, thought this scheme should have been brought forward some years ago and we might now have been in a better position than we are today, but now that it has been entered into I am glad to find that the Board has taken it up so thoroughly. Economies to the extent of from £5,000 to £5,500 per annum are already in view and I hope that when Mr. Dyer comes back and settles down to his work he will be able to increase these economies and at the same time maintain and possibly improve the efficiency of the Docks. The Chairman has referred to the question of stocks. This is an item which bulks very largely in our balance sheet, standing at $1,250,000 odd. I am sure it is a wise thing to have a thorough revaluation of this, but I hope the Chairman's remarks do not portend the appropriation of any large sum out of the profits of this half year for the purpose of writing down values. One of the results of our reorganization scheme has been the retirement of certain members of our staff. I think you will all agree with me, gentlemen, when I say that we appreciate most highly the valuable services they have rendered us for many years past. At the same time I should like to welcome our new chief manager, Mr. Dyer, and to wish him every success in the extremely arduous task which he has undertaken. I have much pleasure in seconding the adoption of the report and accounts.—The motion was carried unanimously.

The Chairman.—That is all the business, gentlemen; thank you for your attendance. Dividend warrants will be ready to-morrow.

CONTRACTING NEWS

PHILIPPINE BUREAU OF SUPPLY.—Two ten-ton road rollers. Castle Bros.-Wolf and Sons, two ten-ton Iroquois Rollers ₱6,200; the Kelly Springfield Company, Buffalo Pitts, at ₱5,270; Findlay and Company, ₱5,500, and ₱5,000 duty free; F. Wilson, two Marshall and Sons Rollers ₱4,700; and C. E. Helvie, Buffalo-Pitts, delivered at Bureau of Supply landing ₱6,495.

ROYAL SIAMESE NAVAL DEPARTMENT.—The following tenders were opened last month on the supply of materials and erection of a steel plate store building:

Howarth Erskine Ltd., Ticals 32,985.00, J. M. Dunlop & Co., 34,257.00, Foo Sang, 36,200.00, Bangkok Dock Co., Ltd., 42,850.00, G. Kluzer & Co., (for steel material only) without foundation and erection 19,295.00. For Carpenters' Building.—Howarth Erskine Ltd., Ticals 18,390.00, J. M. Dunlop & Co., 25.250.00, Bangkok Dock Co., Ltd., 25,300.00. For Boat Shed.—Howarth Erskine Ltd., Ticals 8,067.00, Bangkok Dock Co., Ltd., 8,750.00, G. Kluzer & Co., 9,670.00, J. M. Dunlop & Co., 10,875.00.

CHIEF QUARTERMASTER, PHILIPPINES DIVISION.—Ten bicycles.—Bids submitted: F. H. Thompson ₱63.10 each, for Iver Johnson make; Rafael Reyes, ₱60 for the Dayton; N. T. Hashim and Company ₱119.40 for the Rambler chainless; Erlanger and Gallinger, ₱142 for the Columbia.

SHANGHAI MUNICIPALITY.—One Hundred Steel Poles, 30 feet long, for Electric Street Lighting. Contract awarded Messrs. Bullers Ltd. at £2 14s. 5d. each f.o.b. London. Repairs to the Launch Swift.—Awarded Vulcan Iron Works, Ltd. Tls. 275. The other tenderers were New Engineering & Shipbuilding Co., Ltd., Tls. 485. and the Shanghai Dock and Engineering Co., Ltd., Tls. 435. Steel Work for the Sinza Fire Station. Awarded The Vulcan Iron Works Ltd., Tls. 1,142, delivery ten weeks. The other bidders were: W. M. Law, Tls. 1,100,12 weeks; New Engineering & Shipbuilding Works Ltd., Tls. 1,216, 11 weeks; Fah Shing Iron Works, Tls. 1,448, 6 weeks; Shanghai Dock & Engineering Co., Ltd., Tls. 1,515, 8 weeks; Howarth Erskine, Ltd., Tls. 2,080, 4 weeks; Compagnie Générale de Constructions Industrielles en Chine, Tls. 3,000, 5 months.

CHIEF QUARTERMASTER, PHILIPPINES DIVISION.—Bids for construction of seagoing tug as follows:

Riley, Hargreaves and Company, Limited, $86,500; Shanghai Dock and Engineering Company, Limited, $70,530; Hongkong, Whampoa Dock Company, Limited, $90,027; Findlay and Company, $91,875; Castle Bros.-Wolf and Sons, $82,000 and $66,250, and the New Engineering and Shipbuilding Works, Limited, $83,150.

NAVAL DEPARTMENT, CAVITE.—Electrical supplies. Contract awarded the Electrical Supply Co., Inc., of Manila, for 2,000 feet of Telephone cable at ₱0.60 per foot; one voltmeter, ₱244.00; 6,000 feet of felt wire ₱0.03 a foot; 800 frosted lamps, at ₱0.38 each.

MANILA MUNICIPALITY.—STEAM LAUNCH.—Contract awarded Messrs. Castle Bros.-Wolf & Sons, representing The Taikoo Dockyard and Engineering Co., Ltd., Hongkong. Price $21,547.71, to be completed in five months. The other bidders were: Messrs. Findlay & Co. representing the Hongkong and Whampoa Dock Co., Ltd., ₱22,400; Messrs. Earnshaw & Co. offered the launch "Mascot" for ₱12,000; Messrs. Holliday Wise & Co. representing the Shanghai Dock and Engineering Co., Ltd., ₱23,200, to be completed in five months; Messrs. Riley Hargreaves & Co., ₱24,800, to be completed in eight months; El Varadero de Manila, ₱33,200, to be completed in six months.

BUREAU OF PUBLIC WORKS, PHILIPPINE ISLANDS.—Irrigation Division.—Contract awarded the Atlantic Gulf & Pacific Company, the only bidder. The following are the prices by unit: 50 Steel Head Gates and Gate Frames, without gate stems, weighing approx. 18,369.6 kilograms. ₱0.265 per kilogram; 50 Gate Hoists, each ₱29.00; 50 more or less Gate Stems various lengths, cutting 73.56 meters thread, ₱8.40 each; furnishing 1.5 inch by 1.5 inch square steel rods for gate stems, approx. 1,259.1 kilograms, ₱0.185 a kilogram; 9 stem Guides weight approx. 128.9 kilograms, 0.21 a kilogram. To be delivered as wanted; total in three months.

BUREAU OF PUBLIC WORKS, BRIDGE DIVISION.—Bigaa Bridge—Reinforced Concrete. Contract awarded for all material except the fabricated steel. There were four bidders, contract awarded the Atlantic, Gulf and Pacific Company, price estimated from unit bid submitted ₱21,000 approximately. Total cost of bridge when completed estimated at ₱37,500.

ELECTRICAL SUPPLIES, MUNICIPALITY SHANGHAI.—Tenders are invited for the following:

A.—The supply and delivery at the Electricity Works, c. i. f., duty paid, of 9,700 Carbon Filament Incandescent Lamps.

B.—The supply and delivery at the Electricity Works, c.i.f., duty paid, of 23,250 Metallic Filament Lamps.

C.—The supply, delivery and erection at the Electricity Works, c.i.f., duty paid, of an Electric Goods Lift, capable of raising and lowering a load of 2½ tons.

Conditions, specifications, forms of tender and all necessary information may be obtained upon application to the Electrical Engineer, Mr. T. H. U. Aldridge, at the Works, 31 Fearon Road.

A charge of Tls. 25 will be made for each specification, which will be returned upon the receipt of a *bona fide* tender.

Sealed tenders will be received by the undersigned as follows:—

A.—marked "Tender for Carbon Lamps" not later than noon on Thursday, September 30, 1909.

B.—marked "Tender for Metallic Lamps," not later than noon on Thursday, September 30, 1909.

C.—marked "Tender for Electric Lift," not later than noon on Tuesday, Sept. 7, 1909.

The Council does not bind itself to accept the lowest or any tender, or to pay any expenses which the contractor may incur in tendering.

The names of tenderers, with the prices quoted, will be published for general information.—By order, W. E. LEVESON, *Secretary.*

BANGKOK SANITARY DEPARTMENT.—One 8-ton Steam Road Roller.—Bids submitted as follows:

Howarth Erskine Ltd., Ticals 6,070.00, Samsen Dock Co., Ltd., 6,500.00, J. D. Macarthur & Co., Ltd., 6,550.00, J. M. Dunlop & Co., 6,750.00, Siam Engineering Co., Ltd., 7,500.00.

PROPOSALS FOR PLUMBING.—Headquarters Philippines Division, Office of Chief Quartermaster, Manila. P. I., August 27, 1909. Sealed proposals, in triplicate, subject to the usual conditions, for furnishing all labor and all material to install plumbing in 17 buildings at Asturias and Jolo, Jolo, will be received here until 10:00 a. m., September 27, 1909, and then opened. Plans, specifications, blank forms and information furnished upon application. Envelopes containing proposals should be endorsed "Proposals for plumbing at Jolo, Jolo, to be opened at 10:00 a. m., September 27, 1909," and addressed to the Chief Quartermaster, Philippines Division, Manila, P. I.

NOTICE TO CONTRACTORS.—Sealed proposals, indorsed "PROPOSALS FOR SHIPFITTER'S SHOP, BUILDING NO. 40," will be received at the office of the Civil Engineer, Naval Station, Olongapo, P. I., until 11 o'clock a. m., October 15th, 1909, and then and there publicly opened for the construction of a shipfitters' shop at the

Naval Station, Olongapo, P. I. Plans and specifications can be obtained on application to the Commandant or from the Civil Engineer at the Naval Station, Olongapo. A. P. Nazro, Rear Admiral, U. S. Navy, Commandant Naval Stations, Cavite and Olongapo, P. I.

NOTICE TO CONTRACTORS.—Sealed proposals, indorsed "PROPOSALS FOR QUAY WALLS," will be received at the office of the Civil Engineer, Naval Station, Olongapo, P. I., until 11 o'clock a. m., October 15th, 1909, and then and there publicly opened for the construction of quay walls at the Naval Station, Olongapo, P. I. Plans and specifications can be obtained on application to the Commandant or the Civil Engineer, Naval Station, Olongapo, P. I. A. P. Nazro, Rear Admiral, U. S. Navy, Commandant Naval Stations, Cavite and Olongapo, P. I.

PHILIPPINE BUREAU OF SUPPLY.—Hospital Supplies for General Hospital to be opened October 20th.

U. S. NAVY, CAVITE.—Bids to be opened September 30th for construction of one 96 ft. single screw launch.

BIG BRIDGE CONTRACT.—Howarth Erskine, Ltd., has been awarded the contract for erecting a bridge on the Kuala Kangsar Road and for steel work for seven bridges of the Perak type design, says the *Straits Times.*

FOR SALE.

Patent Slip supplied to H. H. The Rajah of Sarawak by Messrs. Day Summers & Co., Ltd., of the Northam Ironworks, Southampton, England, for sale f.o.b. Kuching, Sarawak. The Slipway has never been erected and was designed to take a vessel of a total displacement of 570 tons, 44' 6" over paddle-boxes, 175 ft. long drawing, 1' 1½". All complete including winding gear and rails, except for the boiler and can be seen lying here. Full particulars will be supplied to any bona fide enquirer on application being made to the undersigned.—H. F. CAREW-GIBSON, *Commissioner of Public Works and Surveys.*

F. M. S. TIN OUTPUT FOR JULY.

	Piculs.
Belat	637
Bruang	72
Bruseh	165
Gopeng	760
Kanaboi	326
Kinta	400
Kledang	....
Kuantan	121
Lahat	951
New Gopeng	200
Pahang Consolidated	1,680
Pengkalen	350
Pusing Lama	805
Rambutan	400
Redhills	605
Royal Johore	100
Salak South	350
Sempam	56
Serendah	314
Sipiau	90
Tekka	570
Tronoh	3,300

PHILIPPINE GOLD OUTPUT FOR AUGUST.

The Paracale Gold Dredging Company, 623 ounces. The Benguet Consolidated, 195 ounces bullion and 254 ounces matte.

NEW PHILIPPINE ELECTRICAL SUPPLY COMPANY.—The Electrical Supply Company, Inc., was recently registered at Manila with a capital of ₱100,000 for the purpose of manufacturing electrical fixtures, etc., and to carry on a general importing electrical business. The directors are: M. Garcia, President; H. Herman, Vice-President and General Manager; L. Vizconde, Secretary-Treasurer, D. Crame, and J. Slisz.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, LIGHT, POWER, TELEGRAPHS, TELEPHONES, AIRSHIPS, ETC.

JAPANESE WIRELESS RATES.—The rate for commercial messages is 25 sen for 5 words and for press messages, 20 sen for 50 words.

CHANCHUN ELECTRIC PLANT.—The South Manchuria Railway Company is preparing to install an electric power and light plant at this point.

NINGPO ELECTRIC LIGHT PLANT.—The merchants of this city have subscribed the sum of Tls. 100,000 for the purpose of installing an electric light and power plant.

ELECTRIZING JAPANESE RAILWAYS.—The Railway Bureau is contemplating the supplanting of steam by electricity on all the main lines after the branch lines are electrized.

PUNJAB ELECTRICAL DISTRIBUTION COMPANY.—This company has gone into liquidation and the matter of lighting for Lahore and Amritsar is now being considered by the authorities.

THE BATAVIA ELECTRIC TRAMWAY.—For the last year the receipts exceeded the outlay by 43,000 guilders. During the year many extensions were made and the traffic greatly increased.

JAPANESE AEROPLANE ASSOCIATION.—An organization has been effected to encourage research in navigation of the air among leading Japanese professors of the different colleges and scientific men.

DAIREN ELECTRIC RAILWAY.—The car barn is the scene of great activity in the assemblying of coaches for the different routes. The first section connecting the wharf with the market is now operating.

AIRSHIPS FOR CHINA.—It has been decided by the Board of War to experiment in the use of airships for the Army and will purchase some Wright machines if arrangements can be made to secure them.

JAPANESE AIRSHIP.—Yoshinosuke Takaoka, a student at the Tsukiji industrial school, is reported to have perfected an airship that rises vertically with its own power and makes a speed of 50 miles an hour.

CANTON TELEPHONE SYSTEM.—The Self.Government Association has registered a complaint against the management of this system with the Board of Posts and Communications asking for a reform of the system.

KEIHIN ELECTRIC EXTENSION.—This company has secured a charter to add an extension connecting Shinagawa and Aoyama. This line is proposed in anticipation of the completion of the electrizing of the line between Tokyo and Kodzu in 1916.

PALACE HOTEL WIRELESS.—This station has been removed, the proprietors having been indemnified by the Chinese Government for the cost of installation and the instruments taken to the Chinese Telegraph Administration building on the Bund in Shanghai.

CHINESE TELEGRAPHS.—The President of the Board of Posts and Communications at Peking has announced that it is his purpose to acquire for the government all the railway and telegraph lines one by one until the systems are under absolute control of the central board.

KEI.HIN ELECTRIC HYPOTHECATION.—The loan of yen 2,000,000 has been successfully made through the agency of Messrs. Sale and Frazar, which will pay off the high interest loan of yen 1,300,000 and leave over yen 500,000 for improvement and doubling of the line.

U. S. TRANSPORT WIRELESS.—Four days out from Honolulu on her recent trip to Manila, a message was recorded by the Transport Sheridan from North Head, Washington, a distance of over 3,500 miles. This is the record for long distance communication in the Pacific.

SINGAPORE'S NEW MOTOR FIRE ENGINE.—The city has purchased a 50 h. p. engine from Messrs. Merryweather & Sons, driven by a petrol engine and is equipped with hose reel and fire escape making a complete department. It carries this apparatus at a speed of 30 miles an hour.

TOKYO ELECTRIC RAILWAY SUPPLY.—Great competition among the hydro.electric power companies for the business of the Tokyo Railway Co. has been noted, but owing to the time which must elapse before the Agatsuma Company completes its installation, the contract lies between the Oi-gawa and the Kinugawa companies.

KOREAN TELEPHONES.—The Post Office at Seoul inaugurated a long distance telephone service between that point and Haiju, Chunchon, Kaisong and Survon. It is its purpose to extend this system to include all the small places within this area. There are now about 2,000 miles of police wires in Korea and it is proposed to add 500 more at a cost of yen 70,000.

TOKYO ELECTRIC LIGHT COMPANY.—At the last general meeting of this company the expenditure of yen 16,500,000 was authorized for the purpose of extending the hydro.generating capacity of its plants. It is proposed to install a generating power station at Yatsusawa, operated with a volume of water of 1000 cubic feet and a 385 foot head. It is estimated that 35,000 h. p. would thus be realized. The present capacity of the company is 27,000 h. p. With the increase, sufficient power will be realized to meet the growing demand for many years.

INTER-MARINE WIRELESS.—The transmission of messages between ships at sea and to points in the United States and Asia is a most satisfactory innovation in the Pacific and has been successfully accomplished by the co.operation of the vessels of the Canadian Pacific and the Nippon Yusen Kaisha. It is also being used in spreading information of weather conditions, which no doubt will be more perfected when all the vessels plying in these waters are fully equipped and the meteorological stations have completed their wireless installations. Hongkong is agitating this question and the government of the Philippines is ready to co.operate.

PUBLIC WORKS, DOCKS, WHARVES, BUILDINGS AND GENERAL CONSTRUCTION.

STRAITS SETTLEMENTS PUBLIC WORKS.—The total amount expended during the year 1908 was $2,360,000.

SENATE HOUSE PEKING.—Estimates have been submitted placing the cost of construction of this building at Tls. 90,000.

JAPANESE IRRIGATION WORKS.—The sum of yen 3,000,000 annually is to be expended until 1923 to complete the schemes now under way.

GERMINAL CIGAR FACTORY EXTENSION.—This company has decided to build an extension to its present plant in Manila at an outlay of ₱100,000.

CH'ANGCH'UN CUSTOM HOUSE.—The sum of Tls. 290,000 has been appropriated for the purpose of erection of this building and making this point a treaty port.

BANGKOK ABATTOIRS CREMATORY.—The municipality has provided a crematory to destroy diseased animals, etc., at the abattoirs. Messrs. Howarth Erskine, Ltd., were the contractors.

THE HUANGPU CONSERVANCY.—The report for the quarter ended July 1st states that 1,021,781 cubic yards were dredged during that time by the three dredges in the new channel.

RANGOON IMPROVEMENTS.—The port commissioners have undertaken a large scheme for river improvement and are building a long stretch of open wharves and jetties along the river front.

JUNOTING RIVER CONSERVANCY.—The investigation of the feasibility of conserving this river has resulted in the approval of the scheme. Plans have already been drafted and sanctioned.

PENANG HARBOR WORKS.—The report for 1908 gives the information that 3840 tons of silt were dredged from the harbor in the vicinity of Church Street Wharf and Swettenham and Victoria piers.

PHILIPPINE IRRIGATION.—The Philippine Govern. ment is making a soil inspection of Bulacan province with a view to carrying out an extensive irrigation scheme covering an area of 65,000 acres.

POSTPONED PUBLIC WORKS AT SINGAPORE.—Proposed works to the estimated value of $323,330 have been postponed on account of the deficit in revenue occasioned by the shortage in opium revenue.

SHANGHAI BUND BRIDGE.—This proposed structure will cost Tls. 60,000, according to the estimates, and it is expected that the French Concession will subscribe the sum of Tls. 10,000 towards the expense.

NEW PORT NEAR ANTUNG.—With the completion of the reconstruction of the Antung.Mukden Railway by the Japanese, it is proposed to open a port at the mouth of the river nearer the sea than the city.

CANTON'S NEW COUNCIL CHAMBER.—The contract for the construction of this large building to be erected near the East gate has been let to a Hongkong contractor. The cost will be approximately $120,000.

NEW TSINGTAU CLUB.—The plans for this institution have been approved and work will commence about the first of the year. Architect Curt Rothkegel of Tsingtau won in the competition among all the architects of the Far East.

SINGAPORE'S NEW FIRE STATION.—This building which is now nearing completion will represent an outlay of $100,000. It is a three-story structure and will be most modernly equipped for the care of the members of the department.

NEW STEEL BRIDGE AT LANCHOW.—This bridge which is 760 feet in length and 30 feet wide was opened for traffic July 26th. It has six steel spans resting on four piers of solid masonry. Messrs. Telge and Schroeder of Tientsin were the contractors.

TIENTSIN NAVAL YARD.—The recommendation of Admiral Sha in regard to the establishment of a naval yard at Tientsin has been approved by the Naval Commissioners. Engineers have been selected to look up a site suitable for the purpose.

New Wharves at Zamboanga.—Plans are being prepared for a new wharf at this point to be built this year. It will have a surface space of from 5,000 to 7,000 square feet and the harbors will be dredged so as to give at least 25 feet alongside.

Yongampho Harbor Works.—The relation of this harbor to trade between Manchuria and Korea has been considered of sufficient interest to expend the sum of yen 5,000,000 in deepening the harbor and otherwise improve facilities for handling cargo.

Building in Dairen.—The construction of an extensive gas works is progressing rapidly and pipes are being laid in the different streets. Besides this enterprise the plant of the Wild Cocoon Silk Spinning Company is installing machinery and has decided to adapt the plant to the use of gas exclusively.

Moro Province Public Works.—The treasurer's report for the fiscal year ended June 30th, 1909, states that ₱173,071 were expended for public works. Of this ₱23,713 were expended in public buildings, ₱83,256 on road and bridge construction, ₱32,813 on wharves and sea walls, and ₱95 miscellaneous.

Kuala Lumpur Water Supply.—The new system will soon be in operation and the completion of one of the filter beds near Ampang will inaugurate a temporary service by a pipe line laid across Weld Hill previous to the completion of the distributing reservoir. The work on the reservoir is progressing favorably.

Zamboanga Water Supply.—A company has been organized for the purpose of installing a water supply and providing electric light and power for the city. Engineer Holmes is preparing plans and estimates and already sufficient stock has been subscribed locally for the purpose of carrying out the project successfully.

New Channel at Newchwang.—The *P. & T. Times* says that a Chinese cruiser reports having discovered a channel as deep as 25 feet at low tide while surveying the approaches to that harbor. The Chinese Government is issuing a chart. Heretofore vessels of over 9 foot draft could not run the bar at the mouth of the Liao.

Pearl Harbor Dry Dock.—The naval dock there will be 1,152 feet long from the coping to the outer sill, 140 feet wide at the top with provision for a depth of 35 feet of water over the entrance sill at mean high water. An intermediate caisson will be installed dividing the dock into two sections of 575 and 532 feet respectively.

China's Arsenals.—The Ministry of War has submitted a memorial to the throne urging the immediate expenditure of Tls. 8,000,000 for the construction of three arsenals previously recommended in the North, South and central respectively. This body directs attention to the increasing requirements of the army for ordinance, etc.

Hindustan-Tibet Road.—The work on this important thoroughfare is progressing rapidly, according to the latest advices. A suspension bridge is being constructed about five miles from the Tibetian frontier at Spoo and a bridge is also being built at Chowra. The material for these bridges has been brought out from England over the passes.

Standard Oil Company's New Building at Shanghai.—This company proposes erecting a four-storey building at the corner of Canton and Szchuen Roads either of artificial stone or granite. It will have a frontage of 200 feet with the main entrance at the corner. The architect is Mr. Sidney J. Powell and the construction will cover a period of 18 months.

Hongkong's New Post Office.—This handsome building has cost up to the end of the fiscal year 1908, 520,296. The total appropriation for this purpose was $930,000. All the walls have been completed to the third floor. The dressed granite set in the work amounted to 19,059 cubic feet in addition to which 5,894 cubic feet of rough granite has been set.

Kelantan Public Works.—The resident's report for 1908 shows an expenditure of $50,000 approximately. This sum was expended in completing the jail at Kota Bhuru, building a market and in the construction of a residence for the secretary to the resident and anothe for the superintendent of police together with the usual road building and upkeep of drainage systems, etc.

Hongkong Public Works.—The report of the Public Works Department for the year shows an expenditure of $1,779,749 out of $1,907,469 authorized. The work on the Typhoon Shelter involved an outlay of $183,696 for a dredger. The work on the Law Courts and Post Office Buildings have yet the amounts of $200,000 and $400,000 to be expended on them, respectively, before completion.

Anderson Bridge, Singapore.—This important structure is nearing completion. Over 1,200 tons of steel were used in its construction and the abutments are of solid masonry. The bridge offers a carriage way of 30 feet and the foot ways on either side are 7 ft. 6 in., respectively. The approaches are 60 feet between kerbs and a ten foot pavement on either side. The cost of the bridge is being borne by the municipality and the tramway company. The plans were prepared by Mr. Pierce, Municipal Engineer, the Westminster Construction Co. has the contract for the construction of the abutments and Messrs. Howarth, Erskine, Ltd., are contractors for the superstructure. This bridge when open will give the tramway connection with the new harbor and central sections and prove of great service in alleviating traffic congestion.

Yalu River Bridge and Its Benefits.—The following estimates of benefits in intercommunication as a result of the construction of this large bridge now in progress is given by an exchange:

When the new big bridge over the Yalu River at Shin-Wiju is constructed, and when the Mukden-Antung Railway is completed, it would be possible to travel from Shimbashi to Mukden in 70 hours, including the sea voyage from Bakan to Fusan. The different stages are from Shimbashi to Fusan 36 hours; from Fusan to Seoul 11 hours; from Seoul to Shin-Wiju 14 hours, and from Shin-Wiju to Mukden 9 hours. Compared with the rate of travel by the Dairen route, this will be a gain of about 40 hours, for it now takes 25 hours from Tokyo to Dairen and about 12 hours from Dairen to Mukden. Supposing the Korean and East Manchurian lines to be well equipped, there can be no hesitation between the two routes. The effect produced upon the prosperity of Fusan, Shin-Wiju and Antung can not but be very considerable.

SHIPBUILDING, GENERAL MARINE AND FISHERIES

China's Naval Scheme.—The High Commissioner of Naval Schemes has memorialized the Throne asking for Tls. 16,000,000 to be expended in the construction of warships covering a period of four years. The Prince Regent is reported to be in favor of constructing ten battleships at a cost of Tls. 400,000,000 immediately.

Motor Boats at Canton.—The American Consul at Canton reports that there are 289 steam launches registered at this port as well as two private launches and 51 motor boats.

Newspapers on the Toyo Kisen Kaisha.—This company proposes publishing a daily newspaper on board the Tenyo and the Chiyo for the accommodation of the passengers. The news will be gathered by wireless. The equipment on board these vessels is effective for over 1,300 miles.

Submarines for Cavite.—The Naval Department at Washington has concluded arrangements for the shipment of eight additional submarines for service in Manila Bay.

American Marine Activity.—Contracts covering an expenditure of over $9,000,000 have been placed with Atlantic yards for the construction of vessels during 1909. Among these contracts are three steamships for the Alaska Steamship Company to cost $700,000 and one passenger and freight carrier for the Matson Navigation Company operating between San Francisco and Honolulu. This is a record year in American shipbuilding.

Lumber for Nanking.—The Yawata Maru has been chartered by Messrs. Bowring & Co. and is loading in Puget Sound.

Hongkong Motor Boat Launched.—The Tien Ma, the largest motor boat in the Orient built for the river trade between Wuchow and Nanking, made her trial trip August 7th. The vessel is hollow sterned, length 74 feet, beam 14.5 ft. and her draught when loaded with 25 tons of cargo and 125 passengers is 2.5 feet. A 100 b. h. p. six cylinder Gardner engine is installed. Kerosine is used as fuel and seven pints per hour is the average consumption. This is the fourth boat on this run and another is being constructed. The engine was supplied by Messrs. J. W. Kew & Co. and the hull was built at Wuchow. The engine was installed by the Hongkong Dock Company.

Dairen-Ujina Steamship Line.—The s. s. Tatsu Maru will make semi-monthly trips connecting these two points and calling at Chemulpo and Moji each way.

The Seattle Maru.—This new vessel of the O.S.K. arrived in Hongkong on her initial trip the latter part of August and proceeded from there via Keelung, Shanghai, Moji, Kobe, Yokkaichi, Shimidzu, Yokohama to Tacoma. The tea ports will be excluded except during the tea season. This vessel was built by the Kawasaki Dockyard, Kobe, and is of 6,182 tons gross. On her trial trip she made 15.5 knots and on her trip from Moji to Hongkong she averaged 11.5 knots.

Pacific Freighter Record.—The Blue Funnel freighter Teucer made the voyage from Yokohama to Victoria in July in 12 days, 22 hours and 26 minutes. The best day's steaming was 332 miles.

Philippine One Bottom Ruling.—The provisions of the Payne Bill requiring that goods shipped from the United States to the Philippines, participating in the free entry provisions of the Payne Bill, must be carried to the islands in one bottom, is expected to have the effect of inducing many Pacific lines to make Manila a port of call.

Freight Schedule from Pacific Coast to Chicago.—In connection with the arrangements between the O.S.K. and the Chicago Milwaukee and St. Paul R.R., the latter company has issued a freight schedule announcing the time service between Seattle and Chicago to be less than seven days. This is about half the time consumed by the older lines, but it is expected that the reduction in time will be met by all the other lines.

China Merchants S. N. Co.—The Board of Posts and Communications has directed the Ta Ching Bank at Newchwang to turn over the Kee Chang Wharves to the exclusive use of this company. These docks have been mortgaged by the Tung Sheng-hoo to the Ta Ching Bank.

New Manila and Hongkong Line.—The representative of the Compania Maritima has been visiting Hongkong to make arrangements for the establishment of a line to ply between British ports, Manila, and other ports in the islands.

Pacific Mail Reduces Rates.—The rate from Manila to San Francisco has been cut to $220, government employees' rate is $150, while the Federal officers and missionaries get a rate of $166.26. The rate on intermediate steamers from Manila has been reduced from $150 to $125.

MINES, MINERALS AND THE METAL TRADE

The Cowie Harbor Coal Company.—The output of coal for the year 1908 was 25,130 tons and the sales 20,120 tons. The equipment is now sufficient to make a showing of 100 tons a day. This coal is reported to be equal to Australian coal.

Upper Burma Ruby Mining.—The value of rubies taken out annually in Burma is approximately $500,000.

Yunnan Mineral Possibilities.—A future is promised French enterprise in Yunnan in the development of large deposits of copper in the North and tin and lead in the south of this territory.

Paracale Gold Boom.—The reports from Paracale districts continue most optimistic and not a few new finds have been made that give promise of remarkable returns. There are now three dredgers working in the district, one of which has been working for over a year taking out 600 oz. a month, while the other two have not been operating a sufficient length of time to make definite report. The testings give promise of greater returns by the latter dredgers than the one that has been in operation for the greater length of time. The installation of the twenty stamp mill at the San Mauricio is progressing rapidly and the Tumbaga is also getting in shape for extensive operations. Besides the gold, a lead zinc vein has been discovered in Mt. Tinga, a mile north of Paracale There is great activity among prospectors and some large capitalists are now looking over the ground with a view to development on a large scale.

Kwangsi Silver Mine.—The Chen Hua Co. has been organized to develop the silver deposits at Kueihsien and machinery has already arrived and is being installed. The report of the Chinese expert who examined the mine contains the information that 200 ounces of bullion may be extracted from a ton of the ore. Twenty lodes have been discovered, each of equal value.

Tongkah Harbor Dredging Company.—This company has been operating successfully in this harbor and was recently authorized the construction of seven new dredgers. The bottom of the harbor has been found very rich in tin ore, samples taken from borings out as far as three miles from the shore showing two pounds of ore per cubic yard.

F. M. S. Tin Export.—The export for the six months ended July 31, 1909, was 453,837.51 piculs. This was a decrease of 36,954.63 compared with the export for the corresponding term 1908.

Raub Gold Export.—During the month of July, Raub exported 1,190 ounces of gold and the total export for the year is 9,773.44.

Tronoh Mines Report for 1908.—The sales of tin ore for the year included 1,712 tons upon which was realized £123,683. Much dissatisfaction developed among the shareholders that found expression at the annual meeting over the character of certain machinery sent out alleged useless.

Cement Telegraph Poles for Australia.—The Postmaster General has directed that tenders be invited for the supply of 1,000 ferro concrete telegraph poles for the use of the government. A London company has offered to supply them at the rate of £50 5s. 6d. for 60 poles each 30 feet long.

Duff Development.—The company saved 5,123 ounces of gold by dredging for the year which was about 700 ounces better than 1907.

Sugar Mills for Panay.—As a result of free entry of sugar from the Philippines several sugar mills have been ordered for installation on the large plantations.

Fushun Coal.—Several shipments have been made monthly to Singapore, Shanghai, and Hongkong of the coal from the South Manchuria Railway mines.

Asiatic Petroleum Company.—This company has just completed the installation of an oil tank at Shaokangtzu. Tanks were already installed at Mukden, Tiehling, Changchun and Liaoyang by this company.

Alluvial Iron Manufacture.—The announcement is made that the Hokkaido Colliery has invented a process of manufacturing iron from iron sand and announces itself prepared to supply 50 tons a day. The process separates the titanium from the iron by combining an element affiliable to titanium and utilizing electricity for separation.

Miike Coal Fields.—The total area of this important coal field is estimated at 40,000 acres, and six mines are now in operation. The output of these mines averages about 4,500 tons a day.

An-yuen Coal Mines.—The three mines in operation there have an output of coal and coke of about 1400 tons a day. In all about 10,000 men are employed. The product is carried by the railway to Chu-cheo, several trains running daily.

Tatingtzu Coal Mine. A seam of coal 10 feet thick has been developed about 40 miles southeast of Kwanchengtzu and an enterprising Chinese has been working it for over a year. The quality of the coal is said to be satisfactory.

Ceylon Gem Mines.—The export of gems from Ceylon is about £240,000 annually in value. These gems are secured in the Ratnapura district.

Mining Plants for Fushun.—Messrs. Head, Wrightson & Co., Ltd., of London, have secured the contract for the installation of pithead plants for the Togo and Oyama pits.

Benguet Output.—The gold output of the Consolidated is valued at $40,000 for the first seven months of this year. With the increased facilities for saving it is expected to reach the vicinity of $100,000, during the year.

FINANCIAL AND MISCELLANEOUS

Philippine Public Works Bonds.—The following were the bids made for the recent issue of ₱3,000,000 four per cent. Philippine Bonds.

The National City Bank and Mercantile Trust Company, ₱2,776,000 at 100.28; Payne and Company, ₱200,000 at 100.51; Morris and Merritt ₱10,000 at 102; and John Selvrom ₱6,000 at 101. One of the terms of the purchase of the bonds was that the purchaser shall pay accrued interest on the bonds from August 1. The Guaranty Trust Company of New York made an offer of 100.23 for the entire issue, on the terms that they should be allowed to take all or none.

Philippine Land Investment Company, Ltd.—This company has been organized by Philippine capitalists interested in Baguio property with a capital of $200,000.

Sekong Rubber Company.—This company has been organized with a capital of £80,000 for the purpose of growing rubber in British North Borneo, where it has acquired 8,800 acres of selected rubber land from the North Borneo Trading Company on a 999 years' lease, rent free, near Sekong.

Nagoya Electric Light Company's Loan.—This loan is for yen 1,500,000 at 7.5% and has been taken up by the Meiji Life, Meiji Fire and the Tokyo Insurance companies.

Osaka-Kobe Electric Railway Loan.—This loan for yen 1,000,000 at 6.3% has been taken up by the Third Bank.

Gunong Rapat Rubber Estates.—Organized capital $150,000, 15000 shares, of which 10,000 shares are offered at par and proposes to acquire Gunong Rapat Estate and the Sungei Raia Estate near Ipoh. The rent is 50 cents an acre, and the total acreage, 333.

Branch of the Chartered Bank.—This institution has opened a branch at Klang, Selangor, F. M. S.

Formosa Camphor Output.—The estimated output for Formosa for the year ending March 31st, 1910, is 3,170,000 pounds.

China's Flour Import.—The total import of this commodity for the year was 300,000 tons, of which 165,000 came from America.

Manchuria Bean Export via Vladivostock.—It is reported that the Mitsui Bussan Kaisha has contracted for 350,000,000 pounds of beans to be delivered at this port during the present year.

Philippine Copra Industry.—The export of copra for the last fiscal year amounted to 168,500,000 pounds and had a value of ₱10,923,260.

Hongkong Shanghai Bank's University Contribution.—The Hongkong and Shanghai Banking Corporation has contributed the sum of $50,000 towards the endowment fund of the proposed university at Hongkong.

Kobe's Population.—The latest census places the population of this city at 212,500.

Perak Rubber Growing Industry.—Over 56,000 acres are planted in rubber in this state representing 8,500,000 Para rubber trees and according to the British Resident's report 10,500 acres were planted in 1908 and there is prospect of increased activity annually.

The Osaka Fire.—The risks carried by Japanese fire insurance companies in the burnt district of Osaka aggregate yen 7,500,000 approximately.

Chinese Flour Monopoly.—The principal Chinese flour mill owners in Shanghai have petitioned the Board of Agriculture for a monopoly of the milling business in the provinces of Kangsuh and Anhwei for a period of 10 years.

Federated Malay States Rubber Export.—The total export for the first seven months of 1909 was 2,998,428 pounds, about 700,000 pounds more than for the whole of 1908.

F. M. S. Agriculture.—The total acreage under cultivation is estimated by the Director of Agriculture at 319,722 acres of which there are 118,697 acres in cocoanuts, 168,048 in rubber, 8,431 in coffee and 24,546 acres in other products, principally tapioca.

Brieh Rubber Estates, Ltd.—This company has a capital of £50,000 of which 20,000 shares of £1 each were offered. The company is to acquire 1,190 acres at Bagan Serai, Perak, of which 516 acres have been planted in rubber varying from 15 months to four years.

Ratanui Rubber Estate Limited.—This company has been formed with a capital of £35,000, of which 16,000 shares of each are offered at par. The company is to acquire 673 acres at Telok Anson, Perak, with 406 acres planted in para some of which is 3.5 years old.

Foreign Post Offices in China.—The Board of Posts and Communications has requested the Wai Wu pu to negotiate with the diplomatic corps at Peking for the closing of all the foreign post offices in Shanghai, Tientsin, Kiaochow, etc.

The Korean Central Bank.—The memorandum published with reference to this institution by the Department of Finance follows:

1.—The Korean Bank is a joint stock company organized by both Japanese and Koreans. The Capital is put at Yen 10,000,000 consisting of 100,000 shares, of which 30,000 shares will be subscribed by the Korean Government.

2.—The Bank will deal in Treasury Funds, and at the same time handle the business of exchange, exchequer bonds, and the interest thereof.

3.—The Bank will reserve gold coins, gold and silver bullion, and convertible notes of the Bank of Japan in the same proportion as the notes issued. It can also issue notes amounting to Yen 20,000,000.

4.—The Korean Government has the right of superintendence over the Korean Bank. No dividend shall be paid on the shares held by the Government until a dividend of 6 per cent. per annum is paid on shares owned by ordinary shareholders.

5.—The Korean Government will advance Yen 1,200,000 free of interest by way of subsidy. This fund share shall remain unredeemed for five years, but must be redeemed in ten years.

6.—The Korean Bank shall advance to the First Bank an amount equivalent to the guarantee fund at the time of the transference of business from the First Bank. The Fund is redeemable in 20 years with no interest.

Iloilo Sugar Shipments.—During the present year, 1,061,038 piculs of sugar were shipped from this port.

The Sahang Rubber Estates, Ltd.—This company has been registered with a capital of £65,000 to acquire lands in Borneo and elsewhere and to engage in the rubber growing industry.

Kiaochou Trade.—The trade for the year 1908 amounted to Tls. 32,089,000, an increase of 11% mostly export, the import showing a decline compared with previous year.

Hongkong's Population.—The total population exclusive of the New Territories is 336,488 of which 12,925 are white, 316,850 Chinese.

Yangtsze Trade.—The trade of Hankow for the year 1908 amounted to Tls. 120,000,000, an increase of over 5,000,000 over the previous year. Kiukiang made a showing of 30,000,000 Taels about the same as the previous year. Nanking's trade amounted to about Tls. 9,855,892 about half a million short of the previous year.

Japanese Silk Production.—Japan produces 50,000,000 catties of silk or about 40% of the world's production.

Korean Budget.—The Residency General Budget for the year is announced at yen 10,000,000, of which yen 3,000,000 is for the expenditure of the Resident General, yen, 3,600,000 for the judicial department of Korea, yen 210,000 for education and yen 3,000,000 already loaned.

The Niitaka Sugar Manufacturing Company.—This company is registered with a capital of yen 5,000,000 for the establishment of a factory at Dabyo, Kagi prefecture, Formosa. The factory is to be equipped with two sets of machinery, each with a capacity of 1,000 tons. It is expected that the plant will be in operation next year.

Chinese Frozen Pig Export.—A consignment of frozen pork also poultry, 8,418 cases; game, 10,674 cases; eggs, 21,048 cases; deer, 1,345 carcases; beef, 12 quarters, were offered for sale in London. A number of hares, teal, widgeon, wild duck, wild geese, snipe, pheasants, woodcocks, fowls, ducks, and bustards, which also formed part of the frozen consignment from China which arrived there in the P. & O. S. Palermo. The birds were all in first-class condition and plump. The 15,000 packages which were sent over contain about 200,000 birds. The birds were on sale in the West-end shops, labelled "Chinese Poultry."

Osaka Shosen Kaisha Loan.—The Fifteenth Bank has taken up the yen, 1,000,000 loan of the O. S. K.

Canadian Trade Commissioner's Office at Shanghai.—The Government of the Dominion has established an office at 15 Kiukiang Road as announced for the purpose of promoting, assisting and stimulating trade with and from China.

Japan's Savings Banks.—The total deposits of the savings banks June 30th, 1909, amounted to yen 114,376,000.

Yalu Timber Trade.—The total export of timber comprised 4,000 rafts, making 1,350,000 pieces eight feet in length during the year 1908. Up to the end of June this year there were already 2,000 of these rafts brought down the river.

Korea's Population.—The total population of the peninsula, according to the Police Affairs Bureau, is 9,288,000 of which 119,000 are Japanese.

THE WEAVING INDUSTRY IN CANTON, CHINA

"The development of the home industry and the prevention of foreign intrusion" are the expressions often heard among the Chinese, says a Japanese Exchange. The cry is the loudest in Canton, because political ideas are comparatively developed among the people there. The so-called encouragement of industry comprises the establishment of fishery, the management of railways, the establishment of banks and steamship companies and the making of shoes, paper and underwears, but particular attention is paid to the weaving industry.

The following are names of principal weavers in Canton:

Yatung Cloth Manufacturing Co., Chiao-shin Manufacturing Co., Huangpu Manufacturing Co., Mushin Company, Yuanchao Industrial Co., Yungshin Industrial Co., Shinning Industrial School, Shinmin Weaving School.

Of the above, the Yatung Co. is engaged in manufacturing lined flannel, and is equipped with 6 H. P. oil-engine and 24 weaving machines for broad cloth, and 30 for narrow width. The flannel (15 yards) is sold at 2 *yen*, 50 *sen*, but as the demand is rapidly increasing, new machinery from Japan is imported. Factory girls work from 8 a. m. to 5½ p. m., and an hour is given for meals. The wage is paid at the rate of 5 *sen* per 10 feet. The result will be quite satisfactory when the Toyoda machinery from Japan is fully installed.

The Yuanchou Industrial Co. is also engaged in manufacturing gas yarn cloth lined and plain. It is carried forward on a much larger scale than the above mentioned one.

The Shinmin Weaving Co. is under the Japanese women married to the Chinese, and purports to be something very profitable, and it has steam power installment.

The Shinning Industrial School is a private institution where weaving and lessons in dyeing are given. There are about 30 students, and the institute has some 25 weaving machinery.

The Mushin Co. is situated in the southwestern part of the city, and has a capital of 100,000 *yen*. It is provided with some 60 weaving machinery, while the company expects to install 30 more Toyoda weaving machines.

THE SABANG BAY HARBOR AND COAL COMPANY

This company which has met with success in its operations at Sabang is now busy doubling its wharf frontage and reclaiming a large portion of the foreshore for the purpose of constructing coal depots, oil depots, and canning factories for the preserving of pine-apples, etc.

Sabang Bay is proving a rival to Singapore as a coaling station and an ideal harbor. It lies at the extreme northeast of Dutch Sumatra, within two days' sailing from Singapore and at a point where it might be said that it is the real gateway to Eastern waters. The harbor entrance is over a mile wide and easily accessible. It is well sheltered and the depth ranges from seven to 21 fathoms. The coal wharves, when the extensions are completed, will have a length of approximately 3,000 feet, with at least 30 feet of water alongside. The coal sheds have a capacity of 30,000 tons, while the minimum amount maintained on hand is 10,000 tons.

The floating dry dock is large enough to accommodate vessels of 3,000 tons while the shops in connection are sufficiently well equipped to handle all the work very expeditiously.

Every inducement is being made to encourage vessels to call at this port for supplies. The company offers free anchorage, free pilot service and wharfage to the lines making Sabang a port of call with the result that it is becoming more popular yearly.

After ten years, this company has overcome many obstacles to success, but it is forging ahead and branching into many additional industries that promise to make Sabang an important center of trade in the very near future. The canning industry particularly seems full of promise and an indication that the company is keeping abreast of the times is noted in the preparations being made to supply oil burners with oil by the erection of a substantial storage plant for oil.

*MOTOR BOATS IN CHINA

Consul Wilbur T. Gracey, of Tsingtau, transmits the following report relative to house boats in China, and the introduction of motors for their propulsion:

House boats have been in use by the natives of China for some hundreds of years, and have been improved and largely used by occidentals living in the Chinese Empire since their arrival in the country. At Shanghai large numbers are owned by the well-to-do Chinese merchants as well as by foreigners.

These boats are usually supplied with long oars and are rowed by Chinese boatmen who can be employed at about 20 cents a day. Generally 6 men are sufficient in the creeks in and about Shanghai and the lake districts, as well as on the grand canal, especially as when going on long trips these boats are attached to steam launches which pass up and down the canals at intervals drawing long trains of various kinds of boats. In Foochow and some of the southern Chinese ports a crew of 8 is usual, at a total cost of about $1.20 a day for the entire crew. Sails are also used on these southern boats to a considerable extent.

An innovation has recently appeared in Shanghai, which is a motor house boat recently built for the Asiatic Petroleum Company. This boat is rather larger than the usual type of house boat in Shanghai and has finer lines and a torpedo stern. The principal dimensions are: Length, 57 feet; beam, 9 feet; draft, 23 inches. The boat is driven by 2 Kelvin motors, each of which has 4 cylinders and is capable of developing 14 horsepower. With the present type of propeller these motors are unable to run at full speed, but they attain 22 horse-power and a speed of 8 miles an hour.

Gasoline is used only to start the engines, ordinary kerosene being used when they have once been set in motion. On a recent trip from Shanghai to Hankow and back 7 cases of kerosene were used and the journey occupied 12 hours less than the ordinary boat train. As petroleum can be purchased in every Chinese city there is no difficulty in replenishing fuel.

It appears possible that this type of boat will become popular with foreigners and Chinese in China, and if so, there should be a good opportunity for the introduction of American types of marine engines. It must be remembered that these engines should be made for boats with a shallow draft, and it is also important that the boats should leave little or no wash, which is an important consideration in creek traffic in China, where a heavy wash is liable to destroy the mud banks and make trouble for the boat owners.

*Daily Consular and Trade Reports.

CURRENT NEW YORK WHOLESALE PRICES OF METALS, MINERALS, CHEMICALS, ETC.

Selected from the Engineering and Mining Journal

Item	Unit	U. S. Currency.
ABRASIVES.—		
Bort, good drill quality	carat	$ 85.00
Carborundum, grains	lb	.10-.17
Corundum	"	.07-.10
Emery, grain	"	.035-.045
Pumice Stone, American powdered	100 lbs	1.60-2.00
ACIDS.—		
Hydrochloric 20°	lb	1.25-1.50
Nitric, 38°	"	4.25-4.625
Sulphuric, 66° bulk	ton	18 00
ALUMINUM, Sulphate Com'l	lb	1.10-1.75
ANTIMONY, needle	"	.05- 06
ARSENIC, white	"	.05-.055
red	"	.07½-.70
ASPHALTUM.—		
Trinidad	ton	2.00-30.04
California	"	21.00-27.00
BLEACHING POWDER, 35%	100 lbs	1.25-1.00
BLUE VITRIOL	lb	5.00
BONE ASH	"	.02⅞-.00
BORAX	"	.04½-.050
*CAPS detonating	M	-7.50
CEMENT.—		
Portland, American	500 lbs. bbl	1.55-1.64
Foreign	" " "	2.25-2.90
Rosendale	300 " "	.85
*Green Island	375 " "	2.75
*Alsen		3.0½
CLAY, CHINA.—		
American common	lg. ton	8 50-9.00
Foreign	"	10.00-17.05
***COALS.—**		
Batan, at Mines	ton	3.00
Australian	"	5.50
COPPER	lb	.13-.10
*DYNAMITE 40%	"	.20
FELDSPAR ground best	sh. ton	10 50-15.00
FIRE BRICK, American	M	30.00-40 00
Imported	"	30.00-45.00
FIRE CLAY, St. Louis Mill	ton	2 50
FUSE—Blasting	1,000 ft	7 50
GRAPHITE—Ceylon, lump	lb	.04-.10
Large lump	lb	.07-.10
GYPSUM—Fertilizer	sh ton	7 00
Powdered	sh. ton	12.00-20.00
LEAD	lb	-.04
MAGNESITE-Greece, crude, 95%	lg. ton.	8.00-10 00
Bricks, domes	per M	160-200
MANGANESE, Ore, 80-85%	sh. ton	20.00-50.00
MERCURY, export flask	75 lbs	36.00-39.00
PAINTS AND COLORS.—		
Litharge American P'w'd	lb	.06¼. 6⅜0
Ochre, Am. Com	sh. ton	850-9 00
Paris green pure, bulk	lb	.26
Turpentine, spirits, bbl	gal	.44½-4
White leod, Am dry	lb	.05⅝-0
Am. in oil	"	.06½-06
Zinc, white, Am. extra dry	"	.05⅞-05
PHOSPHATES, Acid	per unit	65-.7
Florida hard rock	lg. ton	10.25-10 5
Land pebble 68%	"	5 25-5 5
POTASSIUM Cyanide (98-99%	lb	.18-.19
PLATINUM	oz	28-00
PLATINUM Scrap	oz	17 00
SPELTER	lb	.045-016
NICKEL Small lots	lb	.50-60
*POUDER, black blasting A	lb	15
*Judson	"	.14½
Pyrite, Domestic Non-arsenical, Lump	unit	.11-11½
Imported non-arsenical lump	"	.12½-13
Imported, arcenical	"	450-5 00
SALTPETER crude	100 lb	4.50-5 00
SILICA, Lump quartz	lg ton	5 00-6 00
Ground quartz ordinary	"	13 00-15 00
Glass sand ordinary	"	2.7
SILVER	oz	.55½-.55
SODIUM cyanide (100% KCN)	lb	.1
*STEEL, octagon drill	lb	.
SULPHUR, Louisiana prime	lg. ton	22
Roll	100 lbs	1-85-2.
Flowers sublimed	"	1 20-2.
TALC—Domestic	sh. ton	15 00-25
Italian, best	"	35 0040.
TIN	lb	.9½
ZINC, Sheet	100 lb	7.
Dust	lb	.05⅜-.06

*Manila quotation,

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*LONDON, ENGLAND, METAL MARKET

August 1909

**The following are (August 18) prices of metals:—

COPPER	£ s. d.		£ s. d.
*Tough cake and Ingot	62 0 0	..	63 0 0
*Best Selected	62 10 0	..	63 10 0
*Electrolytic	63 10 0	..	64 0 0
*Sheets and sheathing	72 0 0	..	—
*Flat bottoms	75 0 0	..	—
STANDARD †Cash	60 1 3	..	—
STANDARD †Three Months	61 0 0	..	—
*Copper tubes, seamless per lb.	0 0 8½	..	—
*Lake	64 0 0	..	65 0 0

* Less 3½ per cent. † Net.

ALLOYS.

BRASS: Wire	0 0 6⅝	..	—
,, Tubes (solid drawn)	0 0 6⅞	.	—
,, Sheets	0 0 6⅞	..	—

TIN.

English ingots, f. o. b.	132 0 0	..	133 0 0
,, bars	133 0 0	..	134 0 0
,, refined	134 0 0	..	135 0 0
Straits... Cash	134 15 0	..	135 0 0
Straits... Three months	136 5 0	..	136 10 0
Australian spot	—	..	—
Banka (in Holland) Cash	135 15 0	..	—
Banka (in Holland) Three months	136 12 6	..	—

LEAD.

Spanish or soft foreign	12 12 6	..	12 15 0
English pig, common	12 15 0	..	13 0 0
,, L. B.	13 7 6	..	—
,, sheet and bar lead	13 17 6	..	—
,, pipe	14 7 6	..	—
,, red	15 15 0	..	—
,, white	17 10 0	..	—
,, patent shot	15 17 6	..	—

SPELTER.

Silesian ordinary brands	21 17 6	..	22 0 0
,, special brands	22 5 0	..	22 7 6
English Swansea	22 5 0	..	22 15 0
Sheet zinc	24 15 0	..	—

ANTIMONY.

Antimony	29 0 0	..	30 0 0
,, Crude	13 10 0	..	14 10 0
,, Ore (basis 50%)	7 10 0	..	8 10 0

QUICKSILVER.

Flasks 75 lbs. warrants	8 5 0	.	—

MANGANESE.

Ore, c.i.f., U. K. ports.	Per unit.		Per unit.*
1st quality, 50 per cent. and upwards	0 0 9	..	—
2nd quality, 47 per cent. to 50 per cent	0 0 8	..	—
3rd quality, 40 per cent. to 47 per cent	0 0 7	..	—

* Unit corresponds to 1 per cent.

ALUMINIUM.	Per ton.		Per ton.
98-99 per cent	65 0 0	..	70 0 0

NICKEL.	Per ton.		Per ton.
98-99 per cent. guaranteed	170 0 0	..	175 0 0

PLATINUM.

Per oz. Troy, 99s. nominal and subject to negotiation.

**Mining Journal*

HEMP STATISTICS, 31st AUGUST, 1909.

(Courtesy of C. S. NICHOLSON, *Secretary, Manila Chamber of Commerce.)*

EXPORT OF HEMP, AUGUST, 1909.

Date	Vessel	London	L'pool	Atlantic U.S.	Pacific East & California	Continent.	Australia	Other Pts.	Total Bales
1909	Forward:—	152,885	82,760	306,933	75,259	38,158	10,665	21,024	687,684
Aug. 1	Rubi							600	600
" "	Aldenham							30	30
" 4	Numantia			19,050					19,050
" "	Taming	4,885				150			5,035
" "	Orestes		3,762						3,762
" 5	Cyclops				3,150				3,150
" 6	Yuensang					40			40
" "	Indravelli			12,099					12,099
" 10	Alicante	200	1,500			54			1,754
" "	Aymeric				2,999				2,999
" 11	Muncastle Castle			18,125					18,125
" 13	Rubi					100		665	765
" "	Erroll			2,750					2,750
" 11	Kaifong ......Cebu		175						175
" 14	Coblenz						300		300
" 20	Yuensang	1,050				100		250	1,400
" "	Muncastle Castle.......Cebu			8,000					8000
" 21	Zafiro					449		350	799
" 23	Politician	7,819	3,752			600			12,171
" 24	Changsha						872		872
" 26	Erroll.........Cebu			22,300					22,300
" 28	Loongsang							450	450
" "	Kumano Maru							88	88
" "	Rubi							100	100
" 31	Taming	3,371				250		16	3,637
" "	Politician.... Cebu	3,910	2,500						6,410
		174,120	94,449	389,257	81,408	39,901	11,837	23,573	814,545

FAR EASTERN STOCKS AND QUOTATIONS

Courtesy of Messrs. Kadoorie & Co., Hongkong, September, 1909.

STOCK.	WHEN ESTABLISHED	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	AT WORKING ACCOUNT	DATE	LAST DIVIDEND.	Approximate Yield per cent per annum at Present Quotation	CLOSING QUOTATIONS. (Aug. 13, 1909)
BANKS.											
Hongkong & Shanghai Banking Corporation	1865	$15,000,000	120,000	$125	$125	g £1,500,000 s $14,500,000 i $250,000	$2,006,234	31-12-08	Interim of £2 for account 1909, @ ex 1/9 ½ = $22 72	4	1000 sellers £93 ex. div.
National Bank of China, Ld.	1891	£699,475	10) 99,925	£7	£6	c £4,009 $150,000	$10,223	31-12-07	$2 (London 3/6) for 1903	....	$65 buyers
MARINE INSURANCES.											
Canton Insurance Office, Ld.	1881	$2,500,000	10,000	$250	$50	$1,560,000 j $232,757 u $411,990	Nil.	31-12-07	$14 for 1907	7½	$185 sellers
North China Insurance Co., Ld.	1863	£150,000	10,000	£15	£5	g £125,000 s Tls. 150,000 u Tls. 303,747 f Tls. 118,277	Tls. 160,512	30-6-08	Interim of 7/6 for % 1907	5½	Tls. 120
Union Ins. Society of Canton, Ld.	1867	$3,100,000	12,400	$250	$100	s $3,000,000 g £90,000 f $192,248 j £105,249 u $682,609	$2,464,901	31-12-08	Final of $17 making $47 for 1907, and interim of $30 for account 1908	5¾	$835 sales
Yangtsze Ins. Association, Ld.	1862	$1,200,000	12,000	$100	$60	$1,000,000 j $294,405 f $199,234	$707,637	31-12-08	$12 and bonus $3 for 1907	7½	$235
FIRE INSURANCES.											
China Fire Ins. Co., Ld.	1870	$2 000,000	20,000	$100	$20	$1,000,000 x $438,668 f $13,802	$375,314	31-12-08	$6 and bonus $2 for 1907	7	$115 sales
Hongkong Fire Ins. Co., Ld.	1868	$2,000,000	8,000	$250	$50	$1,438,173	$368,711	31-12-08	$27 for 1907	8	$350 buyers
SHIPPING.											
China & Manila Steamship Co., Ld.	1882	$750,000	1) 30,000	$25	$25		Dr. $21,538	31-12-08	$1 for 1906	....	$9 sellers
Douglas Steamship Co., Ld.	1883	$1,000,000	20,000	$50	$50	$264,638 i $99,067	Nil.	30-6-08	$2½ for year ending 30-6-08	7	$36
Hongkong, Canton & Macao Steamboat Co., Ld.	1865	$1,200,000	80,000	$15	$15	e $250,000 d. i. $617,500 f $119,267 $ 22,645	$21,170	30-6-09	Interim of $1½ for a/c 1909	7¾	$31¾ sellers
Indo-China Steam Navigation Co., Ld. (Preferred) Do. Do. (Deferred)	1882	m £600,000	2) 60,000 2) 60,000	£5	£5	i £148,891	£15,162	31-12-08	6/- for 1907 on pref. shares only at ex. 1/9 11/16, $3.154	....	$59½ buyers
"Shell" Transport & Trading Co., Ld.	1898	£ 2,000,000	2,000,000	£1	£1	£720,000 i £100,000	£192,994	31-12-08	Final of 2/- for 1908 & int. of 1/- for a/c 1909	....	7 1/6 buyers
"Star" Ferry Co., Ld.	1898 1900	$200,000	10,000 10,000	$10 $10	$10 $5	$65,000 i $48,980	$31,21	30-4-09	$1.00 50 cts. for year ended 30-4-09	4 3½	$26 sales $15½
REFINERIES.											
China Sugar Refining Co., Ld.	1878	$2,000,000	20,000	$100	$100	e $350,000 r $56,848	Dr. $5858	31-12-08	$5 for year ending 31-12-08	3½	$145 buyers
Luzon Sugar Refining Co., Ld.	1882	$700,000	7,000	$100	$100	none	Dr. $135,893	31-12-08	$3 for 1897	....	$29 sellers
Perak Sugar Cultivation Co., Ld.	—	Tls. 350,000	7,000	Tls. 50	Tls. 50	Tls. 100,000	Tls. 9,173	31-8-07	Tls. 3½ for year ending 31-8-08	....	Tls. 295 sales
MINING.											
Chinese Engineering & Mining Co., Ld.	1901	£1,000,000	1,000,000	£1	£1	d £175,000 h £12,289	£11,556	28-2-07	Int. of 1/6 for year ending 29-2-09 (Coupon No. 12)	7	Tls. 18-20 sellers
Raub Australian Gold Mining Co., Ld	1892	£200,000	150,000 50,000	£1 £1	18-10 £1	£4,873	Dr. £2,191	31-3-08	No. 12 of 1/- = 48 cents	....	$8 sellers
DOCKS, WHARVES AND GODOWNS.											
Fenwick (Geo.), & Co., Ld.	1889	$450,000 z	18,000	$25	$25	$42,986	Dr $7,421	31-12-08	$1¾ for year ending 31-12-06	....	$12
Hongkong & Kowloon Wharf & Godown Co., Ld.	1886	$3,000.000	60,000	$50	$50	$550,000 t $26,806 s $40,000	$30,102	31-12-08	Final of $1½ making $3½ for 1907	....	$60 sa. & b.
Hongkong & Whampoa Dock Co., Ld.	1866	$2,500,000	50,000	$50	$50	i $97,199 v $221,000	$345,162	30-6-09	Interim of $1½ for account 1909	12½	$62 buyers
Shanghai Dock & Engin'g Co., Ld.	1906	Tls. 5,570,000	13) 55,700	Tls. 100	Tls. 100	Tls. 1,000,000	Tls. 6,261	30-4-09	Final of Tls. 2½ for year ending 30-4-1909	6¼	Tls. 79½ sales
Shanghai & Hongkew Wharf Co., Ld.	1902	Tls. 3,600,000	36,000	Tls. 100	Tls. 100	b Tls. 697,257 r Tls. 50,000 e Tls. 125,000	Tls. 6,261	31-12-08	Final of Tls. 6 making Tls. 10 for 1908	6½	Tls. 148 buyers
LANDS, HOTELS AND BUILDINGS.											
Anglo-French Land Investment Co., Ld.	1906	Tls. 2,500,000	3) 25,000	Tls. 100	Tls. 100	Tls. 35,000	Tls. 4,314	29-2-09	Tls. 6 for year ending 29-2-09	5¾	Tls. 105 buyers
Central Stores, Ld.	....	$751,845	16) 50,123	$15	$15	n. $1,000	$24,641	31-12-08	$1.20 on old & 60 cts. on first new issue	....	$17 buyers
Hongkong Hotel Co., Ld.	1866	$600,000 $400,000	12,000 8,000	$50 $50	$50 $25	$648,975 r $13,912	$295	31-12-08	Final of $3 making $6 for 1908	....	$75 ex n i $45 new i
Hongkong Land Investment & Agency Co., Ld.	1889	$5,000,000	50,000	$100	$100	e $250,000	$26,475	31-12-08	Interim of Tls. 3½ for a/c 1909	6½	$105 sellers
Humphreys' Estate & Finance Co., Ld.	1887	$1,500,000	150,000	$10	$10	i $222,172 20) $43,261	$5,486	31-12-08	60 cents for 1908	6½	$9½ sellers
Kowloon Land & Bldg. Co., Ld.	1889	$300,000	6,000	$50	$30	none	$278	31-12-08	$1½ for 1908	5	$30 sellers
Shanghai Land Investment Co., Ld.	1888	Tls. 3,900,000	78.000	Tls. 50	Tls. 50	Tls. 1,523,045 e Tls. 300,000	Tls. 142,404	31-12-08	Interim of Tls. 3 for 1909	6¾	Tls. 120 sellers
West Point Bldg. Co., Ld.	1889	$625,000	12,500	$50	$50	none	$1,968	31-10-08	Interim of $2 for a/c 1909	8¾	$44
COTTON MILLS.											
Ewo Cotton Spinning & Weaving Co., Ld.	1895	Tls. 1,000,000	5) 20,000	Tls. 50	Tls. 50	Tls. 150,000 Tls. 45,939	Tls. 8,820	31-7-08	Tls. 5 for year ended 31-10-08	3½	Tls. 135½ sellers
Hongkong Cotton Spinning, Weaving & Dyeing Co., Ld.	1901	$1,250,000	125,000	$10	$10	e $20,000	$9,553	30-9-08	50 cents for year ending 31-7-08	6	$7½ sellers

FAR EASTERN STOCKS AND QUOTATIONS—(Continued.)

STOCK.	WHEN ESTABLISHED	CAPITAL.	NO. OF SHARES.	VALUE.	PAID UP.	RESERVE	AT WORKING ACCOUNT.	DATE.	LAST DIVIDEND.	Approximate Yield per cent. per annum at Present Quotation.	CLOSING QUOTATIONS
International Cotton Manufacturing Co., Ld.	1895	Tls. 750,000	6) 10,000	Tls. 75	Tls. 75	Tls. 175,000	Tls. 8,372	31-12-08	Tls. 6 for year end. 30-9-06 (8%).	....	Tls. 92
Laou-kung-mow Cotton Spinning & Weaving Co., Ld.	1895	Tls. 800,000	8,000	Tls. 100	Tls. 100	none	Tls. 4,829	31-12-08	Tls. 4 for 1908	....	Tls. 114 sellers
Soy Chee Cotton Spinning Co., Ld	1895	Tls. 1,000,000	2,000	Tls. 500	Tls. 500	*l* Tls. 31,172	Tls. 15,911		Tls. 50 for 1906	....	Tls. 455 buyers
MISCELLANEOUS.											
Bell's Asbestos Eastern Agency, Ld.	1895	£5,377.10s	11) 8,604	12/6	12|6	£1,500	£682	31-12-08	1s. 10½d. for 1908	....	$10
China-Borneo Co., Ld.	1903	$720,000	8) 60,000	$12	$12	$40,000	Nil.	31-12-08	$1.20 for 1908	9	$13 buyers
China Light & Power Co., Ld. Do. do. Special Shares	1901 1907	$550,000	50,000 17) 50,000	$10 $1	$10 $1	none	$61,138	28-2-07	60 cents for year ending 28-2-06	....	$7 sellers
China Provident Loan & Mortgage Co., Ld.	1898	*a* $1,250,000	7) 125,000	$10	$10	$100,000	$3,407	31-12-08	80 cents for 1908	8½	$9.60 sellers
Dairy Farm Co., Ld.	1896	$300,000	40,000	$7½	$6	*l* $10,000 $8,000	$48	31-7-08	$1.30 for year ending 31-7-08	7¾	$17 buyers
Green Island Cement Co., Ld.	1889	$4,000,000	400,000	$10	$10	$13,000	$3,756	31-12-08	Final of 50 cts. making 90 cts. for 1908	10	$8.70 sellers
H. Price & Co., Ld	1907	$120,000	19) 15.000	$10	$10	$5,000	$670	31-12-08	80 cents for year ending 31-12-08	8	$12
Hongkong Electric Co., Ld.	1889	$600,000	60,000	$10	$10	none	$5,195	29-2-09	$1.00 and bonus 20 cents for year ending 29-2-09	6	$20¾
Hongkong Ice Co., Ld.	1881	$125,000	5,000	$25	$25	*k* $150,000	$7,616	31-12-08	Interim of $2 for a|c 1909	10	$188 ex. div.
Hongkong Rope Manufacturing Co., Ld.	1883	$600,000	$60,000	$10	$10	$20.000	$8,790	31-12-08	Interim of $1 for a|c 1909	8½	$24 sellers
Maatschappij tot Mijn-, Bosch- en Landbouwexploitatie in Langkat	1902	Gs. 2,500,000	25,000	Glds. 100	Glds. 100	Tls. 547,500 *i* Tls. 63,914 21 Tls. 547,500	Tls. 316,682	31-10-08	Second quarterly dividend of Tls. 12½ for % 1909	4	Tls. 1045 buyers
Peak Tramways Co., Ld. Do. (New)	1907	$750,000	25,000 50,000	$10 $10	$10 $1	$20,000	$2,204	30-4-09	80 cents on fully paid shares & 8 cents on $1 paid shares for year ending 30-4-09	6 3	$14 $1.40
Philippine Co., Ld.	1904	$750,000	75,000	$10	$10	none	Ps. 18.640	31-12-08	None	....	$9 buyers
Robinson Piano Co., Ltd.	1900	$200,000	22) 4,000	$50	$50	$5,000	$61,138	31-8-08	6% for ½ year ending 30.9.07	....	$50
Shanghai-Sumatra Tobacco Co., Ld.	1902	Tls. 600,000	9) 30,000	Tls. 20	Tls. 20	Tls. 24,820 *w* Tls. 75,000	Tls. 5,250	31-10-08	Final of Tls. 5 making Tls. 8 for 1908	4¾	Tls. 151 sellers
South China Morning Post, Ld.	1903	$150,000	6,000	$25	$25	none	*Dr.* $56,602	31-8-08	None	....	$23 sales
Steam Laundry Co., Ld.	1902	$100,000	20,000	$5	$5	none	$236	31-5-08	40 cents for year ending 30-5-08	7	$5¾
Union Waterboat Co., Ltd.	1905	$500,000	15) 50,000	$10	$10	none	$172	31-12-08	60 cents for year-end. 31-12-1908	5	$10¾ sellers
United Asbestos Oriental Agency, Ld.	1896	$100,000	10,000	$10	$4	$35,000	$1,360	31-5-07	80 cts. on 9,900 ord shares & $19.80 on 100 founders shares for year ending 31-5-07	6½	$13
Watson (A. S.) & Co., Ld.	1886	$900,000	90,000	$10	$10	$300,000 *e* $25,000	$2,613	31-12-08	Final of 30 cents making 60 cents for 1908	6¾	$8 sellers
Weismann Limited	1904	$17,500	175	$100	$100	$6,700	$13	31-7-07	10 per cent for year endg. 31.7.07.	....	$150
William Powell, Ld.	1901	$105,000	15,000	$7	$7	none	$3.95	30-6-08	Final of 30 cents making 80 cents for year ending June 30th 1906		$4 sellers
RUBBERS											
Anglo-Malay Rubber Co., Ltd. (fully paid) Do. Do. (partly paid)	1905	£150,000	46,500 103,500	£1 £1	£1 17|6	....	....	....	30% = 6|- per share for year 1908	....	£7.1.3 sellers £6.15.
Balgownie Rubber Estate, Ltd.	1905 ††	$200,000	‡‡ 20,000	†† $10	†† $10	$7,400	$11,205	31-3-09	....	....	$51½b [S'pore].
Castlefield Rub. Ld., [fully pd.] Do. Do. [contrib.]	1906	£35,000	6,000 24.000	£1 1	£1 17|6	none	....	....	15% for year ending 31-12-08	....	£2.16.3 £2.7.6.
Highland & Lnd. Para R. Co. Do. Do. [fully paid] Do. Do. [partly paid]	1906	£310,000	=181,460 123,540	£1 £1	£1 15|-	£8,784	....	....	25% for year ending 31-3-09	....	£3.5|-. £3.2.6.
Kuala Lumpur Rubber Co., Ltd.	1906	£180,000	180,000	£1	£1	....	1,820	....	3% for year ending 30-6-08	....	£2.15|-.
Linggi Plantations, Ltd. (ord.) Do. Do. (7% pref.)	1895 Reconst 1905	£100,000	+900,000 10,000	2|- £1	2|- £1	£4,000	....	....	60% for year 1908	....	£1.2.9. Nominal
Ragalla Rubber Co., Ltd. (ord.) Do. Do. (8% pref.)	1906 ††	$250,000	22,500 †† 2,500 ††	$10 †† $10 ††	$10 $10	....	....	....	7% for year 1908	....	$25 s. [S'pore]. Nominal
Ledbury Rubber Estates Ltd. Do. Do. (contrib.	1908	£125,000	§§ 60,000 §§ 40,000	£1 £1	£1 7|6	....	....	....	....	....	£2. £1.5|-.

LOANS AND DEBENTURES.	AGENTS' FOR THE LOAN.	AMOUNT OF LOAN.	PAR VALUE.	OUTSTANDING BONDS.	WHEN PAYABLE.	CLOSING QUOTATIONS.
China Government, 7 per cent. Silver Loan 1886 E.	Hongkong&Shanghai Banking Corporation.	Tls. 767,200	Tls. 250	1914	Mar. 31st and Sept. 30th each year until Mar. 31st, 1917	par.
Hongkong Hotel Company, Ltd., 6 per cent. Mortgage Debentures of 1899 ‡	Hongkong&Shanghai Banking Corporation.	$500,000	$500	§ all	Half yearly, June 30th and December 31st	par
Shanghai & Hongkew Wharf Company, Ltd., 6 per cent. Debentures of 1902	Hongkong&Shanghai Banking Corporation.	Tls. 543,900	Tls. 100	....	Half yearly, June 30th and December 31st	Tls. 103½
Astor House Hotel Company, Ltd., 8 per cent. Debentures of 1903	Hongkong&Shanghai Banking Corporation.	Tls. 500,000	Tls. 100	....	Half yearly, January 1st and July 1st	102½
Chinese Engineering & Mining Co., Ltd., 6 per cent. Debentures of 1903 †	....	£500,000	¶	£431,960	Half yearly, June 30th and December 31st	par.
International Cotton Manufacturing Co., Ltd. 7% Debentures of 1901	Russo Chinese Bank	Tls. 500,000	Tls. 100	‖	Half yearly, March 31st and Sept. 30th	Tls. 97½.

(Closing quotations: Plus interest.)

a Authorized capital $2,000,000.
b Building Reserve Account.
c Capital Reserve Fund.
d Depreciation Fund.
e Equalization of Dividend Fund.
f Exchange and Investment Fluctuation Account.
g Gold Reserve Fund
h Exchange Reserve Account.
i Insurance Fund.
j Reinsurance Fund.
k Contingencies Account.
l Legal Reserve Fund.
m Authorized Capital
n Sinking Fund.
o Raw Sugar Reserve Account.
p Premium on New Issue.
q Boiler Repairs and Renewals Account
r Repairs and Renewals Account.
s Silver Reserve Fund.
t Depreciation and Repair Account
u Underwriting Suspense Account.
v Special account
w Special Works Fund.
x Extra Reserve Fund.
y 72,560 owned by the Company.
z 7,200 shares unissued.
1 4,000 shares unissued.
2 First issue of 60,000 of which 10,411 unallotted.
3 5,000 shares unissued.
4 4,480 shares unissued.
5 5,000 shares unallotted.
6 1,616 shares unallotted.
7 75,000 shares unissued.
8 14,000 shares unissued.
9 17,000 shares unissued.
10 40,453 shares actually issued.
11 7,688 shares actually issued.
12 4,200 shares unissued.
13 500 shares unissued.
14 399 shares unissued.
15 22,277 shares unissued.
16 10,000 shares unissued.
17 Special shares are entitled to half of the profits.
18 Capital contributed by Chinese Government Kuping Tls. 5,000,000.
19 12,000 issued only.
20 Typhoon and Floods Insurance Fund
21 Special Cash Reserve.
22 1000 shares unissued.
* Based on last year's dividend.
** Based on present dividend.
‖ Only Tls. 134,000 taken up.
§ 216 held by the Company.
¶ In certificates of £20 and £100.
‡ Redeemable in 10 years, or at option of Company, the Company giving 6 months notice.
† Redeemable at par at rate of £10,000 per annum from 31st December 1903 to 31st December 95.
*** Redeemable at par on 30th June, 1915.
Dr. Deficit.
†† Singapore dollars.
‡‡ 4,880 shares unissued.
× 16,756 shares unissued.
§§ 25,000 shares unissued.
= 4140 shares unissued.

ADDITIONAL SHANGHAI SHARE QUOTATIONS

Stock	Closing Quotations	Highest and Lowest Prices during the Week	Capital	No. of Shares	Value	Paid Up	Reserve	Last Dividend	When Paid
Oriental Consolidated Mining Co., Ltd	27s. 6d.		G. $5,000,000	500,000	G. $10	G. $10	none	Interim of Gold .50 for 1909	June 30, 1909
Vulcan Iron Works, Limited	Tls. 400		Tls. 500,000	1,000	Tls. 500	Tls. 500	—	Tls. 50 for year ended 31.8.06	Nov. 1, 1906
Yangtsze Wharf & Godown Co., Limited	Tls. 125 nominal		Tls. 250,000	2,500	Tls. 100	Tls. 100	Tls. 50,000	Tls. 15 for 1908	April 1, 1909
Wei-hai-wei Land & Building Co., Limited	Tls. 10 nominal		Tls. 91,850	3,674	Tls. 25	Tls. 25	—	—	—
Union Estate & Investment Co., Limited	Y. 105 sales		Y. 1,000,000	10,000	Y. 100	Y. 100	—	First year	—
Hotel des Colonies Company, Limited	Tls. 9 sellers		Tls. 112,500	9,000	Tls. 12½	Tls. 12½	Tls. 29,783	6% for 1907	May 29, 1908
Kalee, Limited	$100 nominal		$400,000	4,000	$100	$100	—	2% for 1908	July 3, 1909
Anglo-German Brewing Co., Limited	$85 buyers		$100,000	4,000	$100	$100	none	$7 for 1907	Mar. 12, 1908
Butler Tile Works, Limited	Tls. 50 nominal		Tls. 60,000	1,200	Tls. 50	Tls. 50	—	Tls. 3 for year ending 31.3.09	June 8, 1909
Major Bros., Limited	Tls. 40 sellers		Tls. 300,000	6,000	Tls. 50	Tls. 50	—	—	—
Oriental Ice Company, Limited	Tls. 50		Tls. 130,000	2,600	Tls. 50	Tls. 50	—	First year	—
Scharffs Oil and Bone Mills, Ltd	Tls. 50		Tls. 200,000	4,000	Tls. 50	Tls. 50	—	First year	—
Shanghai Ice Company, Limited	Tls. 13 sales		Tls. 200,000	8,000	Tls. 25		—	3% for 1907	Mar. 14, 1908
Shanghai Oil Co., Limited	Tls. 25		Tls 175,000	7,000	Tls. 25	Tls. 25	—	First year	—
Campbell, Moore & Co., Limited	$10 buyers		$12,000	1,200	$10	$10	$9,000	$8 for 1905	Apr. 2, 1906
Dunning & Company, Limited	$50 sellers		$100,000	2,000	$50	$50	—	$5 year ending 28.2.08	Apr. 15, 1908
J. Llewellyn & Co, Limited	$50 buyers		$72,000	1,200	$60	$60	—	7.20 for 1908	Apr. 1, 1909
Lane, Crawford & Company	$137½ sales		$250,000	2,500	$100	$100	—	Final of 3% making 6% for 1908	June 8, 1909
Mondon (E. L.) Limited	Tls. 6 buyers	137½	Tls. 225,000	9,000	Tls. 25	Tls. 25	none	—	—
S. Moutrie & Company, Limited	$48 sellers		$250,000	5,000	$50	$50	—	$4 for year ended March 31, 1908	June 13, 1908
Weeks & Company, Limited	$26½ buyers		$400,000	20,000	$20	$20	$40,000	Final of $1.20 making $2 for 1908	May 20, 1909
Dominion Rubber Co., Limited	Tls. 4		Tls. 225,000	22,500	Tls. 10	Tls. 4	—	First year	—
Kalumpong Rubber Co., Ltd	Tls. 42 sellers		Tls. 700,000	14,000	Tls. 50	Tls. 50	** Tls. 11,844.48	6% for 1907	Nov. 29, 1908
Senawang Rubber Estates Company, Limited	Tls. 100		Tls. 250,000	2,500	Tls. 100	Tls. 100	—	—	—
Senawang Rubber Estates Company, New	Tls. 75				Tls. 100	Tls. 75			
Tebong Rubber and Tapioca Estate, Limited	20s.		£76,000	76,000	£1	£1	—	—	—
Eastern Fibre Co., Limited	Tls. 10 nominal		Tls. 300,000	30,000	Tls. 10	Tls. 10	—	1/ ex. 2/6=Tls. 0.40 for 1908	August 5, 1909
Shanghai Mercury, Limited	Tls. 50 buyers		Tls. 105,500	2,100	Tls. 50	Tls. 50	—	Final of 6% making 10% for year ended 30.4.08	June 29, 1908
Shanghai Mutual Telephone Co., Limited	Tls. 62 buyers		Tls. 675,000	13,500	Tls. 50	Tls. 50	—	Tls. 3 for 1907	June 28, 1908
China Export, Import & Lumber Company, Limited	Tls. 78 nominal		Tls. 350,000	500	Tls. 100	Tls. 50	—	10 p. c. for year ending 29.2.08	May 1, 1908
China Printing Co., Limited	Tls. 42½		Tls. 750,000	1,500	Tls. 50	Tls. 50	—	7% 1908	Apr. 18, 1909
Dallas Horse Repository Co., Ltd.	Tls. 25 nominal		Tls. 250,000	5,000	Tls. 50	Tls. 50	—	—	—
Hirano Mineral Water Co., Ltd.	Y. 15 sales		Y. 125,000	5,000	Y. 25	Y. 25	—	10%=yen 2½ for year ending 30th Sept. 08 Y. 1.20 for year ended Feb. 29	Apr. 26, 1909
E. E. Porter & Co., Limited	$50		$100,000	2,000	$50	$50	—	$6 for 1907	Apr. 22, 1908
Shanghai Electric & Asbestos Company, Limited	$20 sales		$125,000	5,000	$25	$25	—	8% for year ended Feb 28, 09	June 21, 1909
Shanghai Electric Construction Company, Limited	£11 buyers	£11	£300,000	30,000	£10	£10	—	First year	—

DEBENTURES

Loans		Price—plus Accrued Interest	Amount of Loan	Outstanding	Nominal Value	Rate of Interest	When Payable
Shanghai Municipal Debentures	1892	Tls. 92½	Tls. 50,000	Tls. 45,400	Tls. 100	5 %	June & Dec.
do	1893	,, 96	,, 125,000	" 32,000	" 100	5½ ,,	Do
do	1894	,, 104½	,, 105,000	" 60,000	" 100	6 ,,	Do
do	1895	,, 92½	,, 115,000	" 32,600	" 100	5 ,,	Do
do	1896	,, 92½	,, 140,000	" 181,800	" 100	5 ,,	Do
do	1897	,, 92½	,, 268,800	" 268,400	" 100	5 ,,	Do
do	1898	,, 104½	,, 300,000	" 60,000	" 100	6 ,,	Do
do	1900	,, 96	,, 83,900	" 31,700	" 100	5½ ,,	Do
do	1901	,, 104½	,, 250,000	" 200,000	" 100	6 ,,	Do
do	1902	,, 104½	,, 150,000	" 150,000	" 100	6 ,,	Do
do	1903	,, 104½	,, 490,500	" 490,500	" 100	6 ,,	Do
do	1904	,, 104½	,, 214,500	" 214,500	" 100	6 ,,	Do
do	1905	,, 104½	,, 820,000	" 820,000	" 100	6 ,,	Do
do	1907	,, 104½	,, 250,000	" 250,000	" 100	6 ,,	Do
Chinese Imperial Government Loan	1886 E	,, 250	,, 767,200	" 354,400	" 250	7 ,,	Mar. & Sept
Shanghai Land Investment Co., Debentures	1890	,, 102	,, 250,000	" 250,000	" 100	6 ,,	May & Nov.
do	1892	,, 96	,, 250,000	" 250,000	" 100	5½ ,,	June & Dec.
do	1894	,, 101	,, 250,000	" 250,000	" 100	6 ,,	Mar. & Sept.
do	1896	,, 92½	,, 250,000	" 250,000	" 100	5 ,,	June & Dec.
do	1900	,, 102	,, 250,000	" 250,000	" 100	6 ,,	April & Oct.
do	1901	,, 102	,, 250,000	" 250,000	" 100	6 ,,	June & Dec.
do	1901	,, 96	,, 100,000	" 100,000	" 100	5 ,,	May & Nov.
do	1902	,, 102	,, 400,009	" 400,000	" 100	6 ,,	June & Dec.
do	1905	,, 102	,, 250,000	" 250,000	" 100	6 ,,	Do
Shanghai Waterworks Co., Debentures	1894	,, 103	,, 100,000	" 100,000	" 100	6 ,,	Mar. & Sept.
do	1896	,, 92½	,, 100,000	" 100,000	" 100	5 ,,	June & Dec.
do	1899	,, 103	,, 50,000	" 50,000	" 100	6 ,,	Do
do	1900	,, 103	,, 100,000	" 100,000	" 100	6 ,,	Mar. & Sept.
do	1902	,, 103	,, 100,000	" 100,000	" 100	6 ,,	Do
do	1903	,, 103	,, 100,000	" 100 000	" 100	6 ,,	June & Dec.
Perak Sugar Cultivation Co., Debentures	1902	,, 101	,, 200,000	" 200,000	" 100	7 ,,	April & Oct.
Shanghai Gas Co., Debentures	1897	,, 92½	,, 100,000	" 100,000	" 100	5 ,,	Do
do	1899	,, 102	,, 1,000,000	" 100,000	" 100	6 ,,	May & Nov.
do	1900	,, 102	,, 2,000,000	" 200,0'0	" 100	6 ,,	June & Dec.
Shanghai and Hongkew Wharf Co., Debentures	1902	,, 100½	,, 799,800	" 799,800	" 100	6 ,,	Do
Astor House Co., Debentures	1905	,, 103	,, 500,000	" 500,000	" 100	7 ,,	Do
British Municipal Council, Hankow	1901	Sh. ,, 105	H'kow Tls 100,000	H'kow Tls 100 000	" 100	7 ,,	June & Dec.
Shanghai Club Debentures	1907	,, 96	Tls. 170,000	Tls. 170,000	" 100	6 ,,	Do
Country Club Debentures		,, 97	,, 139,000	" 189,000	" 100	6 ,,	Do
do	1907	,, 97	,, 92,000	" 92,000	" 100	6 ,,	Do
Lane Crawford & Co., Debentures	1907	,, 100	,, 110,000	" 110,000	" 100	7 ,,	Mar. & Sept.
Anglo-French Land Debentures	1908	,, 102½	,, 250,000	" 250,000	" 100	6 ,,	June & Dec.

PHILIPPINE SHARE REPORT

June 1st, 1909

Name	When Incorporated	Authorized Capital	Issue Value of Share	No. of Shares	Subscribed	Paid up	Reserve	Working %	Date	Last Dividend	Closing Quotations
American Drug Store	1908	₱ 100,000	₱1,000	100	40	₱1,000	......	₱ 5,000	Jan. 4, 1909..	....	No Sellers.
*Banco Español Filipino	1851	3,000,000	200	15,000	8,439	200	₱225,000	....	....	7% for year 1908....	190 nom.
Benguet Consolidated Mining Co....	1903	2,000,000	2	1,000,000	495,000	2	......	38,000	Feb. 2, 1909..	....	No Sellers.
Benguet Commercial Co., Ltd......	1908	200,000	10	20,000	7,360	10	......	....	....	7% for year 1907	₱10.
Cadwallader-Gibson Lumber Co....	1908	1,000,000	100	10,000	8,650	100	......	....	....	....	No Sellers.
*Camote-Clayton Mining Co.......	1909	400,000	10	40,000	20,000	10	......	....	....	....	₱10.
*Compania Maritima...........	......	1,018,000	200	5,090	5,090	200	......	....	....	....	₱40 buyers
*El Varadero de Manila..........	......	350,000	100	3,500	3,500	100	......	....	....	....	Sellers 70
Export & Import Lumber Co.......	......	200,000	200	1,000	1,000	200	......	....	....	....	No sellers.
*Fabrica de Hielo de Manila.......	......	350,000	50	7,000	7,000	50	......	....	....	18% for year 1908...	₱80 sellers
*Germinal Cigar Factory..........	......	500,000	500	1,000	1,000	500	₱285,000	....	....	6% for year 1908 and 6% on capital......	750 sellers
H. E. Heacock Co...............	1909	100,000	100	1,000	800	100	......	....	....	First year..........	No sellers.
*Headquarters Mining Co. (Inc.)...	1908	600,000	10	60,000	35,000	10	......	....	....	....	₱10.
Insular Lumber Co..............	1907	2,000,000	200	10,000	9,000	200	......	....	....	....	No sellers.
Juan Seiboth Co., Ltd............	1908	150,000	20	7,500	500	20	......	....	....	First year..........	....
*La Concha Button Factory.......	......	75,000	100	750	750	100	......	....	....	10% for year 1908...	₱110 sellers.
Lambert, Springer Co............	1908	200,000	1,000	200	80	1,000	......	....	....	....	No sellers.
Luzon Stevedoring Co............	1909	250,000	25	10,000	4,200	25	......	....	....	First year..........	....
Newspaper Publishing Co.........	1907	400,000	100	4,000	3,740	100	......	....	Dec. 31, 1908.	½ of 1% interim for 1908............	No sellers.
Walter E. Olsen Co., Inc..........	1909	500.000	100	5,000	2,033	100	......	....	....	First year..........	No sellers.
Paracale Gold Dredging Co........	1907	£10,000	£1	10,000	9,000	£1	......	....	....	....	£1.10 s.
Palomar Park Amusement Co.....	1908	300,000	......	300,000	60,312	.50	......	....	....	....	₱1.
Phil. Hemp Machine Co., Ltd......	1907	1,000,000	100	10,000	8,500	100	......	....	....	....	₱100
Philippine Publishing Co..........	1907	600,000	200	3,000	2,181	200	......	....	Mar. 1st, 1909	₱3 a share for 1908..	₱50
Port Banga Lumber Co...........	1908	100,000	1.000	100	934	93,400	None.	40,000	First Saturday in January..	None..............	No sellers.
The Philippine Gold Dredging Co...	1907	200,000	10	20,000	20,000	10	......	....	....	....	No sellers.
*Philippine Co., Ltd.............	......	750,000	10	7,500	7 500	10	......	....	....	....	₱5 buyers.
Philippine Rosin & Turpentine Co..	......	150,000	1	150,000	70,000	1	......	....	....	First year..........	....
Philippine Exploration Co.........	1908	2,000,000	10	200.000	90,000	10	......	....	....	....	No sellers.
The Rosenstock Pub. Co..........	1908	75,000	10	7,500	6,000	10	......	....	....	....	No sellers.
*San Nicolas Iron Works..........	......	300,000	500	600	600	500	......	....	....	....	₱200 sellers.
San Mauricio Gold Mining Co......	1908	4,000,000	200	20,000	......	....	......	....	....	First year..........	No sellers.
Tarlac Railway Co...............	1906	150,000	100	1,500	1,500	100	......	₱9,674.75	June 30, 1908.	....	No sellers.
Union Hemp Machine Co..........	1909	50,000	10	5,000	2,600	10	......	....	....	....	No sellers
Zamboanga Cold Storage Co......	1903	40,000	400	100	200	200	₱ 8,500	....	May 1st, 1909.	20%..............	₱120.

* John T. Macleod's share list

PHILIPPINE BONDS

	Dated	Authorized	Issued	Outstanding	Par Value	Rate of Int.	When payable	Last Quotation
Philippine Friar Land Bonds	Feb. 1st, 1904	$7,000,000	$7,000,000	$7,000,000	$ 100	4%	Feb. 1, 1914	104[illegible]
Public Works and Permanent Improvement Bonds	March 1, 1905	$5,000,000	$2.500,000	$2,500,000	$ 100	4%	March 1, 1915	104[illegible]
Do.	Feb. 1, 1906	....	$1,000,000	$1,000,000	$ 100	4%	Feb. 1, 1916	104[illegible]
Manila Sewer and Water Works Improvement Bonds	June 1, 1905	$4,000,000	$1,000,000	$1,000,000	$ 100	4%	June 1, 1915	104[illegible]
Do.	Jan. 2, 1907	....	$2,000,000	$2,000,000	$ 100	4%	Jan. 2, 1917	104[illegible]
*Philippine Railway First Mortgage Fourt per cent Thirty Year Sinking Fund Gold Bonds	July 1, 1907	$15.000,000	$5.736,000	$5.736,000	$1000	4%	July 1, 1937	97

*Payment of interest guaranteed until maturity or redemption by the Philippine Government.

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Shanghai Electric & Asbestos Co., Ltd.
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Siemssen & Co.

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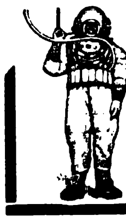
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CHINESE ARMY

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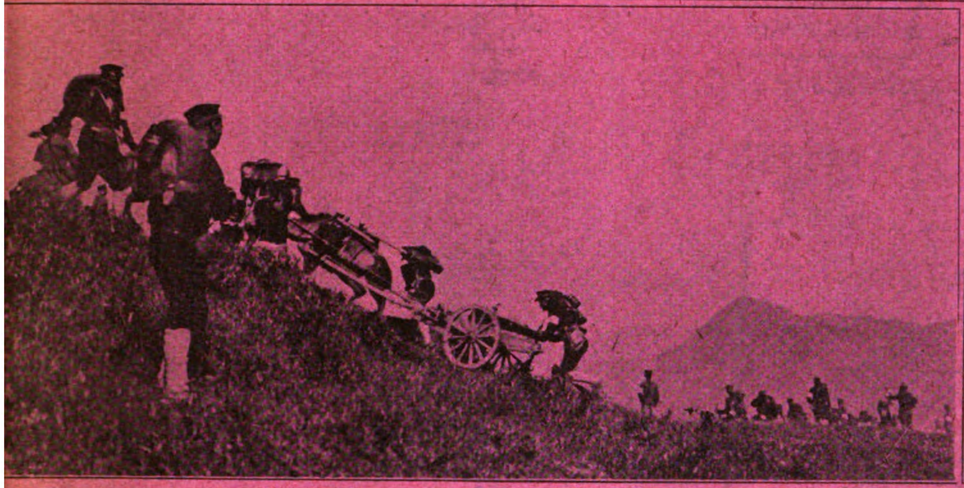

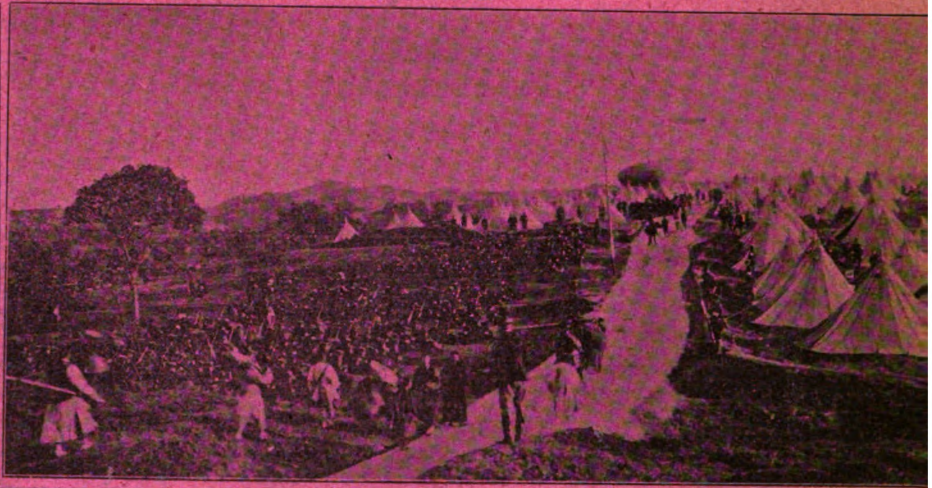

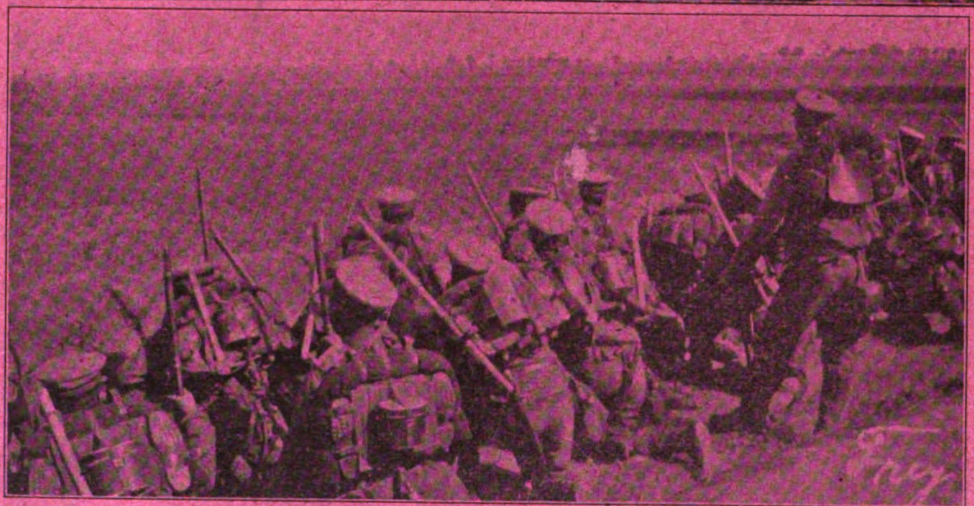

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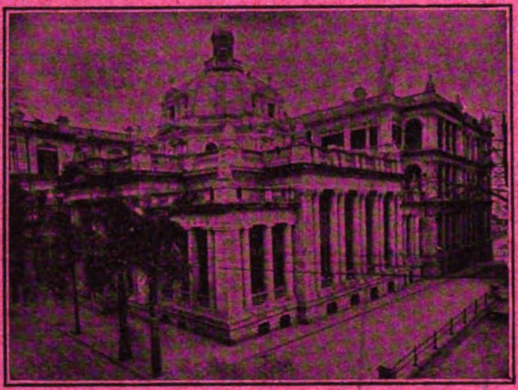

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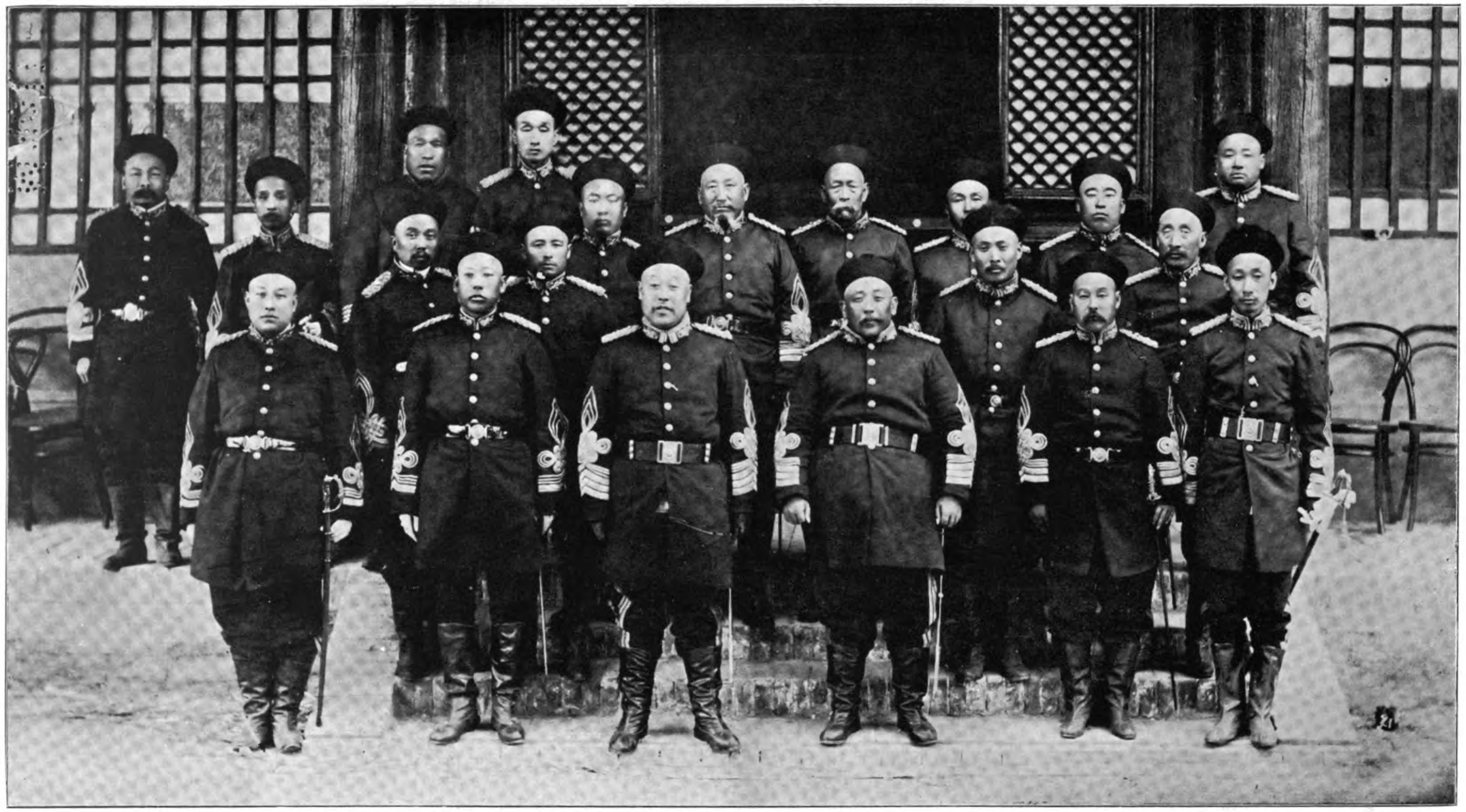
THE WAR MINISTER AND CHIEFS OF THE PEI-YANG ARMY



Front Row, from left to right: Colonel YEN TUN-YUAN; Colonel CHAO CHUNG-SAN; TIEH LIANG, War Minister (only photo of the War Minister in Foreign Uniform); YUAN SHIH-KAI, Commander in Chief; General FENG WANG-FU; General WANG.

Middle, from left to right: Surgeon General HSU HUA-CHING, Director of Peiyang Army Medical College; Paymaster General LU, Director of Peiyang Treasury; General FENG YU-MUN; Colonel LO LANG-TSAI; General TIENG TSUNG-YU; General HSU KOU-CHUNG; General SHA SIN-YU; General TUAN CHIH-KUEI; General TUAN TSU-CHUN; Colonel CHUN HSU-FENG; General MA LING-PIAO.

Back, from left to right: PAN CHING SAN; Colonel YUN YU-TSUN; Brigadier General CHANG HUAI-CHIH.

THE FAR EASTERN REVIEW
COMMERCE ❂ ENGINEERING ❂ FINANCE

VOL. VI. MANILA, P. I., SHANGHAI, AND YOKOHAMA, OCTOBER, 1909 No. 5

THE CHINESE ARMY

(FROM OUR OWN CORRESPONDENT)

Shanghai, October 1st, 1909.

"No good man would be a soldier, no good iron would be a nail," runs a popular proverb in Chinese, and to carry arms was considered about the lowest degradation that could befall one. A soldier was likened unto a dog employed to watch a house, and for centuries no Chinese gentleman was found in the military service of his country. The result has been humiliating. Defeat after defeat at the hands of the despised barbarians, surrender and alienation of territory, threats and intimidation from every side, and all the indignities the strong is wont to heap on the weak, has been China's lot.

But the change has come. Slowly it has been driven home to the nation that the Analects of Confucius are impotent to ward off and conquer the barbarian rifles and big guns, and that if the nation is to exist, force must be met with force. It is a sad spectacle to witness the oldest nation in the world with ideals centered in the pursuit of peace and commerce, being compelled through the exigencies of our 20th century civilization to shake off its hoary traditions, and reluctantly accept the last resort to secure justice and fair dealing from the outer world.

Li Hung-chang initiated the movement over ten years ago, by establishing military schools on modern lines, but the inherent antipathy of the better classes to adopting a military career made it difficult to find students, and it was not until four years ago that the movement received any support from the country. Yuan Shih-kai's remarkable success with the Northern Army inspired a sudden high respect and admiration for the new soldiers, and the effect of Japan's victory over Russia, on the Chinese mind, completely broke down the old ideas. What Japan could do, China could do, for are we not the superior race, reasoned the latter.

The Imperial Edict authorizing the creation of 36 divisions, and a programme extending over 10 years ending with the establishment of an Imperial Army of 1,085,976 men on a war footing quickly followed, and today the energies of the central and provincial authorities are being taxed to the limit to carry through the scheme. At the same time a large naval programme has been entered on, to be completed in 7 years, synchronizing with the time set for the creation of the army. The next seven years, therefore, marks the real crisis in the history of China. Her rulers and leading men believe, if her integrity is safeguarded until such time as her military and naval programme is completed, the Empire will then be well able to stand alone, command respect, and successfully combat any further encroachments on her authority. It is to be feared, however, that unless wiser counsels prevail, the younger element, already imbued with the military spirit, will not remain content with the existing situation, but will launch the Empire into a war for the recovery of lost territorial rights. Until pitted against a foreign foe, it is unprofitable to hazard an opinion as to the efficiency and fighting qualities of the Chinese. In their own opinion they are invincible, and this belief and their utter contempt for the foreign barbarians, constitutes the greatest menace to the peace of the world seven years hence. It takes centuries of warfare and military traditions to make good fighting men, and in this fact lies the pity of the spectacle of a peaceful

LIEUTENANT GENERAL CHANG PIAO AND STAFF,
COMMANDING THE 8TH DIVISION OF THE LU-CHUN, AND OF THE SUNG PUAN TSEN, SZECHUAN.
COMMANDER-IN-CHIEF OF THE SOUTHERN ARMY IN THE LAST AUTUMNAL MANEUVERS IN ANHUI PROVINCE.

(Continued on page 175.)

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THE PHILIPPINE BUREAU OF LABOR

A laudable effort is being made by the Philippine Government to regulate the relation between employer and employee so as to avoid the serious effect of strikes upon the industries of the country and their menace to the welfare of the laboring classes. For this purpose the bureau of labor was authorized, and when properly organized it is believed will serve to smooth out many differences that have heretofore interfered with the greatest measure of co-operation between capital and labor, so necessary to the proper development of the resources of the islands.

The operations of this department are receiving every assistance on behalf of the Insular authorities and, while little may be said of the outcome, there is already evidence of the practical service this bureau may render to the cause once well under way, and enjoying the confidence of both sides of the labor question.

In the recent strike of cigar workers an effort was made to adjust differences, and with a measure of success. Indeed, the majority of the workers subscribed to the arrangement arrived at through the efforts of the Bureau, and had there been a general sentiment among the striking workmen to abide by the decision of the majority, further trouble would have been averted. However, it became necessary for the authorities to intervene to protect the majority from the organized effort of the minority to intimidate and assault.

It was the first opportunity the Bureau found to offer its good offices, and its success in bringing about an adjustment satisfactory to the manufacturer and the majority of the employees is far from discouraging. It has served to impress upon the workingman that striking is a precarious method of winning substantial recognition, a costly experiment at best, and that such a course should only be taken after every other means have been exhausted. The Bureau of Labor is endeavoring to bring the industrial to a realization of his relation to the industry with which he is identified, of the loss sustained through strikes by both capital and labor remaining idle while some minor matter relative to the relationship of the two is being adjusted. The Bureau of Labor realizes that it will take some time to gain any measure of the confidence of the industrial unless the labor leaders cooperate in the work. This they failed to do in the recent trouble and have by their actions demonstrated their incapacity to properly serve the interests of their following or of the community.

We are glad to see, however, that great activity is promised in a campaign of education by the Bureau to develop among the workingmen a proper sentiment and attitude toward industrial questions.

The progress of this work will be watched with great interest by many who find the labor problem in the Far East a very serious one. Whether it be possible to destroy the old "jefe" system and substitute for it one in which individual intelligence will co-operate to its control, is a serious question confronting the different departments of Philippine industry.

The news from Canada would indicate that the legislation provided to prevent industrial warfare in the form of strikes and known as the "Industrial Disputes Preventative Investigation Act," which went into effect in 1907, has been a success. In *McClure's Magazine* for September, under the caption "The Best Way to Prevent Industrial Warfare," Ex-President Chas. W. Elliot of Harvard writes:

"The chief feature of the beneficent Canadian act called the Industrial Disputes Investigation Act was the requirement that, in the event of a dispute arising in any industry known as a public utility, it should be illegal to resort to a strike or lockout until the matters in dispute had been made the subject of an investigation before a board of conciliation and investigation, to be established under specified rules by the Canadian Minister of Labor. Under this act either party to a dispute may apply for the appointment of a board of investigation. Each of the two parties to the dispute may nominate one member of the board, and these two may select the third who serves as chairman of the board of three. If either party fails to nominate a member, the Minister of Labor appoints that member; and if the two members fail to agree upon the third member, the Minister appoints the third member. The board will therefore inevitably be constituted, and will go to work if either party to the dispute applies for an investigation."

"On the fifty-five applications received, strikes were avoided or ended in twenty-five coal mines and four metalliferous mines; in fifteen railroads and three street railways; in two bodies of longshoremen; in one body of teamsters and in one body of sailors; and in two industries not public utilities. There were two cases in which strikes were not averted or ended. Only two cases, therefore, out of fifty-five ultimately resulted in strikes."

"It is the best piece of legislation in the world for the prevention and settlement of lockouts and strikes in an important class of industries which, in the interest of the nation as a whole, ought never to be interrupted."

In connection with the above excerpts it might be well to note that of the 55 applications for the appointment of boards, seven were made by employers, 46 by employees, and two by both.

This encouragement may serve to give the Bureau of Labor for the Philippines encouragement and incline the pessimistic to reserve their verdict until every opportunity is given to work out this great problem among a people but recently encouraged to individual effort and under conditions and environments that, to say the least, are discouraging.

The high standard of intelligence of the Canadian industrial must be considered in the promising outcome of a year's experience in the prevention of industrial revolutions. And whether the same methods would apply successfully to industrial problems in the Philippines may, we believe, be measured by the relative individual intelligence of the Philippine worker and the Canadian industrial.

THE WHANGPOO CONSERVANCY

The suspension of the Whangpoo Conservancy operations has been the subject of much comment in the Shanghai press, and shipping circles are greatly interested as to the action of the Consular Body upon representations made by the Shanghai Chamber of Commerce to secure the unanimous consent of the members of the Conservancy Board for the closing of the Ship Channel and the provision of funds to continue the necessary dredging operations. The following correspondence between the Secretary of the Shanghai Chamber of Commerce and the Secretary of the Whangpoo Conservancy Board throws some light on the situation:

Shanghai General
Chamber of Commerce.
Shanghai, 11th September, 1909.

DEAR SIR:—

In consequence of rumours having reached my Committee that the work in connection with the Conservancy of the Whangpoo is not proceeding as expeditiously as is desirable, I venture to ask for information on the following points—whether—

1.—Permission has been granted to the Engineer-in-Chief to close up the upper end of Ship Channel.

2.—If sufficient funds are available for the purpose.

3.—If sufficient funds are also available for continuing the dredging operations in the "Astraea" Channel, so as to ensure that Channel being available for shipping when the other is closed.

I am, dear sir,
Yours faithfully,
L. E. CANNING,
Secretary.

A. G. H. CARRUTHERS, Esq.,
Secretary, Whangpoo Conservancy Board.

Office of the Whangpoo
Conservancy Board.
Shanghai, 12th September, 1909.

DEAR SIR:—

In reply to your letter of the 11th September, I am directed to inform you:

1st.—That at a meeting of Conservancy Board on the 1st September, permission to proceed with the closing of Ship Channel was given to Mr. de Rijke by the Commissioner of Customs and the Taotai's representative, Mr. Onanu. Subsequently, in a letter dated 7th moon 25th day (9th September 1909) to the Commissioner of Customs, the Taotai disclaimed all responsibility if the closing of Ship Channel was proceeded with.

2nd.—In the opinion of the Commissioner of Customs there are sufficient funds to close Ship Channel if the accumulated interest fund in Taotai's hands is paid to Conservancy account.

3rd.—Dredging operations at a slower rate than hitherto can be continued for about six months, if this fund which amounts to about Sh. Taels 190,000.00 is handed over; this should ensure the "Astraea" Channel being available for shipping (it is being used by practically all the shipping now) when the other is closed though Mr. de Rijke considers even more dredging may be required in it.

Yours faithfully,
A. G. H. CARRUTHERS,
Secy. Whangpoo Conservancy Board.

L. E. CANNING, Esq.,
Secretary, Shanghai General Chamber of Commerce.

After this correspondence the following letter was addressed to D. Siffert, Esq., Consul General for Belgium and Senior Consul, by William D. Little, Esq., Chairman, Shanghai General Chamber of Commerce:

Shanghai General
Chamber of Commerce.
Shanghai, 18th September, 1909.

D. SIFFERT, Esq.,
Consul-General for Belgium
and Senior Consul.

SIR:—

I have the honor to enclose copies of letters exchanged with the Conservancy Board.

My Committee consider the reply to their letter of the 11th instant unsatisfactory, and now appeal to the Consular Body to obtain the united consent of the Conservancy Board to the closing of the Ship Channel, and the provision of any necessary funds required to continue the dredging operations as expeditiously as is required by the Engineer-in-Chief.

It will, no doubt, appear to you and your colleagues that the closing of Ship Channel can only go on at the same time as dredging in Junk Channel, as the Engineer-in-Chief requires the mud dredged to fill up the former channel.

At the present time only two-thirds of the stream is running through the new channel and to anyone who has followed Mr. de Rijke's scheme, it must be clear that to prevent any silting up in Junk Channel, dredging must be continued.

I have therefore the honor to request that representations be made, as soon as possible, to the Authorities concerned, as my Committee are convinced that the work at the present juncture is of the utmost importance.

I have the honor to be, sir,
Your obedient servant,
WILLIAM D. LITTLE,
Chairman.

The above letters with estimates of the cost of the amelioration of the river were submitted at a meeting of the Chamber, September 27th. So far as has been learned no action has been taken to provide for the continuation of this important work.

According to the estimates submitted by John S. de Rijke, Esq., Engineer-in-Chief of the Board, $5,340,000 will be needed for actual work during the three years ending July 1st, 1912, and a further expenditure of $2,558,820 during two years ending July 1st, 1914, making in all $7,898,820. This does not include the cost of administration which is estimated will cost about $294,000 annually.

Referring editorially to the minutes of the Shanghai General Chamber of Commerce meeting, the *North China Daily News* says that they add nothing to what the *News* had already published "except in so far as the Chamber is shown to be taking the strongest possible attitude in the matter. No hint is given of the reasons for which the accumulated interest fund (of Tls. 190,000) in the Taotai's hands is not paid over. Perhaps none is required; and since the question has passed into higher hands there is little use in pursuing a controversy with the local native authorities. It is to the Chinese Government that Shanghai has to look for satisfaction; and in that it is nearly a fortnight since this question was brought to the notice of the Diplomatic Body, we cannot too strongly protest against the delay in arriving at some definite conclusion. It is fairly generally understood that the Chamber of Commerce adjourned its meeting last Monday until to-day in the hope that the intervening week would have brought some answer from Peking. What actually appears to have happened is that the period allotted to the Chinese Government, within which to choose between providing funds for the dredging and reversion to the Peace Protocol of 1901, has been extended. Whether the duration of that period is to depend upon the actual needs of the Huangpu or on the superior wisdom of Peking is not apparent. In the meantime every day's delay increases both the danger of work done being undone, and of the ultimate cost of completion. At the time that the last soundings were taken, Astraea Channel showed a depth at low tide springs of 18 ft. But the width over which this obtained was not equal; and only last Friday, if we are not misinformed, a ship drawing 20 ft. 6 ins. touched bottom where she was supposed to have found 24 ft.

"As has been said before, experts differ as to the length of time for which dredging may be suspended. But in that it must be resumed one day or another, no good result can come of delay, still less, in view of the Chinese Government's familiar methods of procrastination, of indecision."

NEW LIQUID CEMENT INVENTION

A revolution in the cement industry is heralded in the Japanese Press as the result of the discovery of a new process of manufacture by the use of thermo-electricity. The process is secret and is controlled by Mr. Takashi, technical expert of the Japan Nitrogen Fertilize Company, and Mr. Tsuneichi Fujiyama of the same company. The *Japan Mail* gives the following description of the process:

"Ordinary cement is a compound of lime and clay, as every one knows, heated almost to fusing point that is, to 1,200°—1,400° of Celsius. The new product, which has been just patented, is made of the same materials, but the process of manufacturing is quite new. Instead of using coal for heating, the new cement is obtained by heating the mixture with thermo-electricity of the high degree of 3,000 of Celsius, at which point the matter is fused and becomes liquid, and is afterwards cooled. The use of thermo-electricity in the manufacture of cement has never been known, though Edison is said to have once tried it as an experiment, so the honor goes to the present inventors. By the new methods various imperfections, instability of quality, and expensive processes unavoidable under the existing method of manufacture will be obviated, besides many other advantages. Should the new cement prove popular, it will prove a severe blow to Portland cement manufacturers. Speaking of the new invention, a specialist says that whether liquid cement is ideally perfect or not is a question at present; and even granting that it is perfect, it is not certain whether it can be turned out on scale sufficiently large for economic purposes. It is necessary for starting a factory to obtain a place where hydro-electricity can be cheaply obtained, otherwise the practical utility of the invention will not be much."

DEATH OF H. E. CHANG CHIH-TUNG

His Excellency Chang Chih-Tung, Grand Secretary, Grand Councillor and President of the Board of Education, died at Peking, October 5th, after 47 years of active official life during which time he rose from a reader in the Hanlin Academy to the highest position in the gift of the Emperor. The late Grand Secretary was born in 1835 in Nan-pei, Chihli, and rose through the offices of provincial governor and viceroy of many provinces to the position of Grand Councillor to which he was appointed in 1906. He was recognized as a man of great literary ability and, while not practical in many ways, proved himself a friend of reform which inclined to greater facilities for education. He was instrumental in establishing several colleges and encouraged industrial education. He was jealous of China's ancient literature and customs, and his last years were marked by an effort to stem the tide in favor of western learning throughout the Empire. Perhaps the most important act of his long career from a foreign viewpoint was his refusal in 1900 to comply with an edict issued at the time of the Boxer troubles and directing all the viceroys and governors to send all available troops to assist the Boxers. It later developed that the edict was forged and issued by Prince Tuan, but there is reason to believe that Chang Chih-Tung saw that only disaster would follow such a course. His appointment to the Council was believed to have been made to counteract the influence of Yuan Shih-Kai, and whether this is true or not, it is recognized that had it not been for the opposition of the late Grand Councillor, the reform movement would have made much greater headway in the Empire.

His death is believed to have resulted from continued worry over the Szechuan-Hankow Railway Loan.

THE CARNIVAL INDUSTRIAL EXPOSITION AT MANILA

The plans for the third annual Philippine Carnival to be held in Manila from February 5 to 14, next year, have been completed, and already much of the initial work has been completed.. The Manila carnival has now become the greatest annual affair of this sort in the Far East and its fame has spread to many far away lands, and the managers of the big festival have been assured that a large number of visitors from the United States, Hawaii, Japan, the China Coast, Straits Settlements, India and Australia will be in Manila during the carnival season next year, and it has been decided to make one of the main features of the big show a grand industrial exposition wherein will be shown all of the arts, handicrafts and natural resources of the Philippines.

The work of collecting the exhibits for this section of the carnival is under the supervision of the Hon. Dean C. Worcester, Secretary of the Interior of the Philippine Government, and he has already begun work on what, when it is completed, will be the largest, most interesting and most comprehensive collection of the industries of the Philippines ever gotten together.

One of the main features of this exposition will be the mining exhibit, which will show just what has been done and is now being done to develop the mineral resources of the Philippines. A large stamp mill is to be erected on the carnival grounds, which will crush ore during the whole carnival, and there will also be large models of native dredges, which will be placed alongside of models of the most modern and up-to-date dredging machinery to be found anywhere on earth.

The forestry bureau will make a very interesting exhibit, as will the bureau of agriculture. One of the most interesting features of the bureau of science will be silk culture, which is destined to be one of the most important industries of the Philippines within a very short while.

There is to be an agricultural congress in Manila during the carnival, which will be attended by the leading planters and other agriculturalists all over the islands, who will be addressed by experts in the various lines of

agriculture represented in the Philippines. They will be given lectures on the best methods of sugar production, on how to get the best results from cocoanuts, and the various makers of hemp machines will hold a contest to demonstrate the abilities of their various machines. The latter will be one of the main features of the carnival, for the contest will be under government supervision and, when it is finally completed, will show very conclusively which ones of the many fiber stripping machines which have been placed on the market in recent years are capable of doing the work claimed for them.

Invitations have been issued by the carnival association and the Governor General of the Philippines to the 300 business men of the Pacific coast of the United States who are to pay a visit to China early next year for the purpose of studying commercial conditions in that country, to extend their itinerary to include the Philippines and to be here during the carnival, and offering as an inducement the industrial features of the big carnival. It is believed that the invitations will be accepted, and if they are, it will be the means of bringing into close contact the producers of Philippine products and the men who buy them at home.

Taken all in all, the Philippine Carnival for 1910 promises to be the most successful affair of the sort ever attempted in this part of the world.

PERSONAL

Sir Chin Lung Liang-Sing has been appointed secretary to Prince Hsun and will accompany His Imperial Highness and his suite on his foreign tour of Europe.

Ex-President Fairbanks was given a dinner at the Metropole Hotel by the Manila Merchants' Association.

The latest news from Washington is to the effect that Minister Crane has been asked for his resignation by the State Department.

H. E. Chao Erh-Shun is reported to be slated for the post of Viceroy of Manchuria to succeed H. E. Hsi Liang who goes to Szechuan.

Thomas Cary Welsh, Esq., Assistant Executive Secretary of the Philippines, sailed for Europe early this month.

J. B. Suttor, Esq., Commercial Agent for New South Wales, and J. M. Sinclair, Esq., Commercial Agent for the State of Victoria, arrived at Shanghai the latter part of September. G. H. Medhurst, Esq., of Messrs. Dodwell & Company, returned to Hongkong last month after a vacation of 18 months in Europe.

Brevet Rank of Commissioner of Dockyards will be conferred upon H. E. Shang Chi-heng, Provisional Treasurer of Fukien, and he will be appointed manager of the Foochow Dockyard on the recommendation of His Imperial Highness Prince Hsun.

OBITUARY

The death of Mr. T. D. McKay, the veteran passenger agent of the Southern Pacific, on September 15th, at San Francisco, closed the career of one of the most progressive and popular transportation officials in the Far East. He was known in every port and his optimism had much to do with his marked success in the interests of his department.

The death of Mr. H. S. Hendry, one of the engineers of the Taikoo Dockyard and Engineering Company of Hongkong, occurred at Hongkong September 19th, at the age of 34. He was a native of Greenock, Scotland, and had served over three years with the dockyard previous to which he was connected with the Indo-China S. S. Company.

REVIEWS

The Recognition of Minerals, by C. G. Moor, M.A., F.I.C., late resident chemist of the Ashanti Gold Fields Corporation, late public analyst to the city of Exeter, public analyst to the county of Dorset and the borough of Poole, together with *Monographs on Geology, Ore Deposits, Etc.*, by Donald A. MacAlister, Assoc. R.M.S., F.G.S., is the latest volume on mining received from the presses of the Mining Journal, London, and perhaps no more valuable collection of notes has ever been compiled that could prove of greater practical value to the mining man and prospector. In the first paragraph of his introduction, the author writes: "This book is intended to assist the reader to distinguish minerals of commercial value from ordinary rocks and stones," and further he says: "It is hoped that as the book stands the book will enable any one to take any kind of mineral, rock or stone, and to form an opinion whether it is of commercial value or not." This promise has been fulfilled in the volume under review and mining men, as well as all interested in any way in the mining industry, should find a place for this collection of notes in the library. Price 7*s*. 6*d*. net.

Waterproofing, by Myron H. Lewis, C.E., is the subject of an interesting paper read before the municipal engineers of the city of New York and published by permission of the Engineering News Book Department. It is profusely illustrated with plates reproducing designs covering the work on important New York buildings, reservoirs, bleeding walls, elevator pits, etc. This paper should prove of the greatest value to engineers in assisting them in solving the waterproofing problem.

Modern Methods of Street Cleaning, by George A. Soper, Ph.D., Mem. Am. Soc. C.E., is an interesting comparison of methods of street cleaning in European cities and New York which makes the work an up-to-date review of the most modern methods for maintaining clean streets. It should prove of special interest to municipal engineers the world over. The Engineering News Publishing Co., New York.

ALCOHOL FROM WASTE PRODUCT

Wood Waste Distilleries News, edited by Carl Von Hartzfelt, M.C. of Cleveland, O., in the interest of the wood waste alcohol distillation industry, makes some interesting references to the success attained by the utilization of refuse products of the farms, decayed portions of crops, sawdust, etc., for this purpose at a cost of from six to eight cents a gallon which gives the cheapest possible supply of smokeless and odorless heat and light, and at the same time creates an industry that encourages thrift, saves money for the consumer and puts money in the pockets of the producer for something that was formerly considered of no value. The Wood Waste Distilleries Co. of Cleveland, Ohio, is making a specialty of supplying equipment to suit every condition, and a plant may be purchased from $950 up. Their notice in the advertising section of the REVIEW is of special interest.

RICH ORE FROM THE TAMBAGA MINE IN PARACALE DISTRICT

Five samples taken from different points on a slate dyke 149 feet in length and 45 feet wide assayed $16.12, $100.04, $35.55, $11.99, and $34.31 respectively, making an average of $39.61 a ton. These samples were entirely in slate exclusive of the rich veins of calcite. This is another confirmation of the richness of this property. It seems as the work progresses the ore gives greater and greater promise of richness and volume. The company expects to begin operations immediately.

ZAMBOANGA COLD STORAGE COMPANY

At a recent meeting of the stockholders of this company, it was decided to issue the remaining 200 shares of treasury stock, or what part of it is necessary, to build a new plant and install new machinery of greater capacity. The machinery is being built by the Vulcan Iron Works, San Francisco, and the new building is in the course of construction.

This company has met with unusual success as is evidenced by the increasing patronage.

NOTICE

Offers are invited for the property, buildings, mill, ice plant and engines formerly belonging to the Hongkong Milling Co., Ltd., and situate at Junk Bay in the Colony of Hongkong, particulars whereof are as follows:

1. *Property:*—New Kowloon Marine Lot No. 4, situate in Junk Bay, immediately outside the Lyemun Pass, within the New Territories of the Colony of Hongkong and half an hour by launch from the City of Victoria. The lot has a clear sea frontage of about 780 feet, reclaimed, levelled and walled, off which there is available draught of water to permit of easy access by large ocean going steamers. Area:—189,300 sq. ft. Held under Crown Lease for the residue of a term of 75 years from the 7th February, 1905, at an annual Crown Rent of $434, with a right of renewal for a further term of 75 years, upon certain conditions. Included in the demise is a right of user of a fine supply of fresh water from a stream adjoining the lot.

2. *Buildings.*—Mill and Cleaner House, 5 floors each, 50'×140' and 15' average clear height. Engine House, 65'×30'×18' (high). Workshops, 60'×22'×18' (high). Grain godown, 156'×280'×36' (high). Flour Godown, 156'×80'×36' (high). Latrines. Oil Tank, 18' 6" (diameter)×17' (high). All built of red brick in cement mortar and completed in the year 1906. Bran godown 146'×40'×20' (high), built of timber covered with galvanized corrugated iron. 50' T head timber wharf extending 30' beyond sea wall.

3. *Mill:*—A Double Unit Flour Mill complete, with a guaranteed capacity of 1600 barrels of flour of all grades per run of 24 hours, but under favourable milling of Pacific Coast wheat will produce 2,000 barrels per 24 hours. Supplied by the Wolf Co. of Chambersburg, Pa., U.S.A., at a cost of over U. S. $75,000. Erected in the year 1906 and guaranteed of the then most modern design and full sized.

4. *Ice Plant:*—One Can Ice making Plant on A Borsig's (Berlin) Anhydrous Sulphuric Acid System, with compressor, open air condenser, liquid cooler, ice tank, cans, frames, etc., can filter, belt driven crane for moving frames with ice cans, thawing off tank with tipping device, complete distilling plant, with pipes, valves, pumps, shafts, etc., complete. Producing about 20 tons per 24 hours in blocks about 50 lbs. each. Erected in 1908 and costing about Mex. $50,000.

5. *Engines:*—Three 3-cylinder Diesel Engines supplied in 1906 by Sulzer Bros. of Winterthur: two 250 hp. each and one 150 hp. Worked for about 18 months from beginning 1907. One 100 kw. generator 250 volts and one two panelled switchboard.

Offers for the above *en bloc* or in detail should reach the undersigned, from whom any further particulars may be obtained, not later than the 31st December, 1909.

DEACON, LOOKER & DEACON,
Solicitors for the Mortgagees,
1 *Des Voeux Road,*
HONGKONG.

THE IMPERIAL HEADS OF THE CHINESE ARMY

HIS IMPERIAL HIGHNESS, PRINCE TSAI-TAO,
HEAD OF THE MILITARY ADVISORY BOARD.

HIS IMPERIAL HIGHNESS, PRINCE YU-LANG,
HEAD OF THE ARMY ADVISORY BOARD.

THE CHINESE ARMY

(Continued from page 171.)

nation assuming the garb of warriors. Abhorring the idea of force through so many centuries, accustomed to settle his differences by reason instead of the sword, the love of peace and disinclination to fight has become ingrained in the Chinese character, and it will take many years to root out this hereditary instinct in their nature.

But the issue must come sooner or later, and the fate of China will then be determined. Already the subsidized organ in Shanghai of the younger generation of Chinese officials in its weekly tirades against Japan, frequently refers to the terrible day of reckoning in store for the Japanese. Reflecting, as it does, the sentiment of many who expect to be in power several years hence, the world may well view with deep concern, and follow with interest the development of the programme China is now committed to. Meanwhile the market for rifles, guns, war ammunitions, and equipment for the many proposed arsenals, dockyards and depots will keep foreign factories working overtime, and this phase of the reform is what really appeals after all to the manufacturers of the world.

THE ARMY PROGRAMME

The new army scheme for China, originating with Yuan Shih-kai, embraces the organization and equipment of 36 Divisions exclusive of the Imperial Guard Corps of three divisions or 30,000 men now being formed in Peking. This new or National Army, as differentiated from the provincial troops, is to be called the Lu-Chun, and have a modern organization, copied almost bodily from the Japanese. The authority is vested in the Ministry or Board of Army Affairs (Lu-Chun-pu) at Peking, established by Imperial Edict dated June 1, 1907. This Board is at present composed of a President (H. E. Tieh-Liang,) two Vice-Presidents, two Councillors and two Secretaries. Prince Ching, the venerable Imperial Statesman, has held the post of Senior President of the Board, until relieved at his own request about a month ago. The Board is divided into a central department, a Military Council and ten bureaus. The first acts as a central registry and deals with all general matters, not allotted to the bureaus. The Council handles all matters of organization and intelligence, and the ten bureaus deal largely with corps matters, such as transport or quartermaster, commissary, arms, ammunition, artillery, forts, recruiting, military law, cavalry, etc. In addition to the bureaus, there is a General Staff divided into 5 bureaus and sub-divided into 15 sections. Its prescribed establishment is 58 officials and 14 military officers, who work out plans of national defense, and supervise generally the instruction of officers for the staff and control the military academies and schools. The active direction of the Lu-Chun is controlled by the Board, though for organization, discipline, supply and pay the provincial viceroys or governors are responsible. The latter are also responsible forthe efficiency of their troops, which are periodically inspected by generals attached to the central Board, but

His Excellency, YUAN SHIH KAI.

appointed by the Throne for this special duty.

Each of the 36 divisions of the Lu-Chun is to consist of two brigades of infantry (four regiments), one regiment of cavalry, one regiment of artillery, one battalion of engineers, one battalion of transport, one hospital company, one balloon, and one machine gun section.

The infantry brigades, of two regiments each, will consist of three battalions of four companies each to the regiment, or six battalions to the brigade, each battalion to have a total of 659 officers, men, and servants. Of these, 504 are actual rifle bearers and 36 supernumeraries. The brigade strength will, therefore, be about 4,036 men.

The cavalry regiments are organized into three squadrons of 4 troops each, and each squadron has a strength of 363 officers and men—224 actual sabres and 16 supernumeraries. The regiment has a total strength of 1,116.

The artillery regiments consist of three battalions of 3 batteries of 6 guns each or a total of 54 guns. In the north, the field guns outnumber the mountain guns, while the reverse obtains in mountainous provinces. Each battalion has a total strength of 568 men, officers and servants, of whom 378 are actual fighting men with 27 supernumeraries. The total strength of the regiment is 1,731.

The battalions of engineers, transports, etc., are practically the same as the infantry. Thus the Division when at full strength will consist as follows:—

Infantry	8072
Cavalry	1116
Artillery	1731
Engineers	671
Transport	748
Hospital Co	250
Balloon Section	50
Machine gun	130
Total	12,728

or in round numbers 12,500 men.

The regulations in force provide for three years' service with the colors, when the men pass into the first reserve, where they serve three years, being called out for drill one month each year. Then they pass to the second reserve for 4 years, being subject for drill one month in the second and fourth years each. This completes their military service of ten years.

Of course at the outset the proposed reserves of the Lu-Chun cannot be counted on in bringing the army up a war footing, and the Board of War has designated the regular provincial troops as the second line of defence. The Hsun-fang-tui is the name given to these forces, who are directly under the control of the provincial rulers, and constitute the police force or constabulary of the Provinces. While not always organized on modern lines, they are generally armed and equipped with modern rifles, accoutrements, and uniforms, and in some cases like Tientsin, Nanking, and the more important provincial capitals, they are modern drilled. They are organized into territorial districts called "lu" in each province. Each "lu" contains a certain number of "ying" or battalions of infantry or cavalry, divided into 3 "shao" or companies. In the infantry each company has 97 officers and men and each battalion 301. A cavalry company has 57 officers and men and the battalion 181. The number of these men in the various provinces is difficult to ascertain, but has been variously estimated as between 400,000 to 500,000. Until such time as the regular reserves of the Lu-Chun have been completed—10 years—these provincial forces will take this place in an emergency.

So on the completion of the new programme the strength of the army on a peace footing will be 450,000 men and officers, and 1,085,970 on a war basis. On a peace basis the unit is the Division of 12,500, but on a war basis it will be an army corps, consisting in addition to the regular divisions, of a reserve division, a reserve brigade, and three reserve battalions. Each of the 36 divisions is to be brought up to war strength in this manner.

This in brief is the general outline of the programme being followed at present, and while considerable progress has been made, the reforms

have been delayed and postponed by the governors and viceroys under various flimsy pretexts, the favorite one being lack of funds. As such large increase in expenditure must be provided from means of taxation, considered to be the personal perquisites of the governors, instead of falling in heartily with the scheme, many are pleading poverty and appealing to Peking for financial help. But those "higher up," having at some time or other filled the posts of provincial governor or viceroy, have a very good grasp on the real situation, and the Board of Finance has recently submitted a memorial to the effect that if the provincial revenues were honestly accounted for, and the contribution to Peking faithfully allotted, it would net an additional Taels 30,000,000 per annum to the Imperial Treasury. And so while in some urgent cases Peking has come to the rescue with funds, the Throne has admonished the viceroys and governors to get busy and bring their forces up to the required quota, under pain of severe penalty.

DISTRIBUTION OF DIVISIONS

The latest information as to the allotment of the new forces for each province and the progress of the same is as follows:—

CHIN-CHI (in the vicinity of Peking) there are to be four Divisions. Two of these are now completed.

CHIHLI PROVINCE, two Divisions—both are completed.

SHANTUNG PROVINCE, two Divisions—one is completed.

KIANGSU PROVINCE, two Divisions. The Division at Nanking has been completed, and Soochow has trained one brigade of infantry two companies of artillery, two companies of cavalry, and one company of engineers.

KIANG-PEI (Northern Kiangsu), one Division —of those one brigade of infantry, two battalions of artillery, and two squadrons of cavalry have been formed at Tsingkiangpu on the Grand Canal.

ANHUI PROVINCE, one Division—one brigade of infantry, one squadron of cavalry, one battalion of artillery, one company of engineers, and one company of transport have been formed.

KIANGSI PROVINCE, one Division—one brigade of infantry and two companies of cavalry have been formed.

HUNAN PROVINCE, one Division—one brigade of infantry has been formed.

HUPEI PROVINCE, two Divisions—one division and one mixed brigade have been formed.

HONAN PROVINCE, one Division. One brigade of infantry, two squadrons of cavalry, and two battalions of artillery have been formed.

CHEKIANG PROVINCE, one Division—one brigade of infantry has been formed.

FUKIEN PROVINCE, one Division—one brigade of infantry has been formed.

KWANTUNG PROVINCE, two Divisions—one mixed brigade has been formed.

KWANGSI PROVINCE, one Division—three battalions of infantry and one battalion of artillery have been formed.

YUNNAN PROVINCE, two Divisions—one brigade of infantry and two battalions of artillery have been formed.

KWEICHOW PROVINCE, one Division—one regiment of infantry has been formed.

SZECHUEN PROVINCE, three Divisions—one brigade of infantry has been organized.

SHANSI PROVINCE, one Division—one brigade of infantry has been organized.

SHENSI PROVINCE, one Division—one brigade of infantry and one battery of artillery have been organized.

KANSU PROVINCE, two Divisions—one brigade of infantry, two squadrons of cavalry, and two battalions of artillery have been organized.

HSIN CHIANG PROVINCE (New Dominion), one Division—one regiment of infantry, two squadrons of cavalry, and two battalions of artillery have been organized.

JEHOL (Chihli, outside Great Wall), one Division—one regiment of infantry and one squadron of cavalry, have been organized.

SHENGKING PROVINCE, one Division—one brigade has been trained and also one battalion of artillery.

THE LATE YANG SHIH HSIANG, VICEROY OF CHIHLI
AS COMMANDER-IN-CHIEF OF THE PEIYANG ARMY, ORGANIZED BY HIS PREDECESSOR YUAN SHIH-KAI

THREE ORIGINAL PHOTOS OF HIS EXCELLENCY, TUAN FANG, AS COMMANDER-IN-CHIEF OF THE NANYANG OR SOUTHERN ARMY. THE MIDDLE PHOTO SHOWS THE VICEROY AT HIS MOTHER'S GRAVE

KIRIN PROVINCE, one Division—one brigade of infantry has been trained.

HEILUNGCHIANG PROVINCE, one Division—no information as to new troops.

Here are also stationed in Manchuria (Shengking and Kirin Provinces) one complete division and two mixed brigades taken from the Lu Chun formerly organized in Chihli Province by the Viceroy Yuen-shih-kai.

According to the above estimate there are 7 complete divisions, 17 mixed brigades, 4 regiments, with 16 odd battalions of artillery, 14 cavalry squadrons, and three companies of engineers and transport now in existence, giving a total of about 180,000 men or 40% of the new programme. This is a good rate of progress for the first 3 years, and it seems entirely probable that the full 36 Divisions will be created in the next seven years as proposed by the Board of War.

The interest displayed by the Regent and his Imperial brothers and cousins in the new army, which points towards the awakening of a military spirit in the Rulers, is displayed by the Edicts of July last, which established the Military Advisory Board, with Princes Tsai Tao and Yu Lang as Presidents, and the appointment of Prince Tsai Fu to the command of the Imperial Guard Corps. The title of commander-in-Chief was prohibited to be used in future by Provincial authorities and generals, this honor being reserved exclusively for the Emperor, and during his minority by the Regent.

IMPERIAL GUARD CORPS

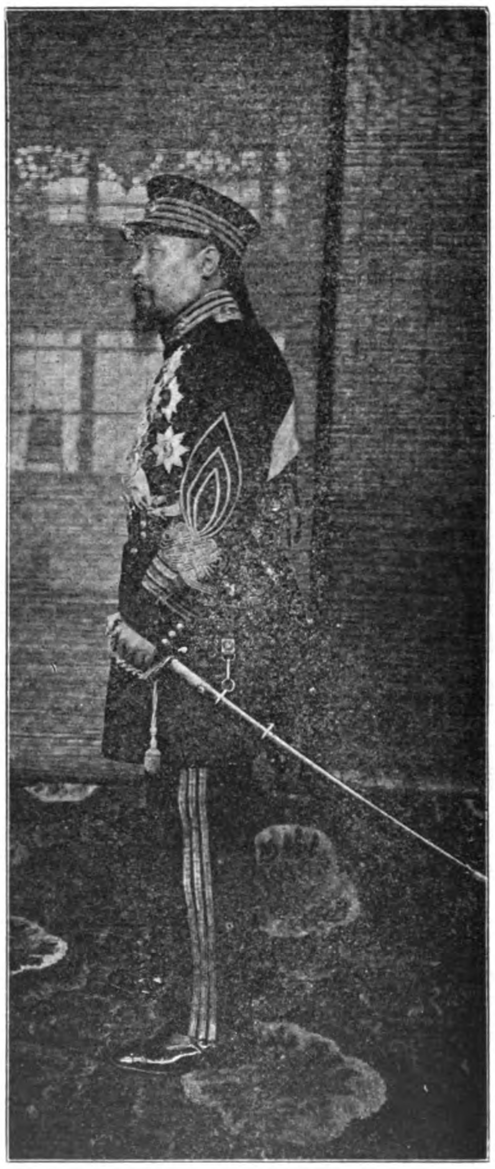
The new organization scheme, enacted recently, provides for the formation of an Imperial Guard Corps of 30,000 men or three Divisions. The

Prince Regent himself will be the Titular Commander and the soldiers are to be raised entirely from the youths of the eighth Banner Corps, selected for their physique and learning. This will be a pure Manchu body guard for the defense of the Palace. One division of 10,000 will be organized immediately and in three years the Corps will be brought up to its full strength. Graduates from the Nobles' College are being distributed to the various modern drilled divisions for six months' instruction preparatory to appointments as officers in this special corps.

Prince Tsai-fu, the second son of Prince Ching, who has just completed a tour around the world with Tang Shao-yi, has been appointed Commander-in-Chief of the Guard Corps, and Gen. Chiang Kuei-ti has been summoned to Peking to assume command of the first Division. When this Body Guard has been formed, the present Peking Gendarmerie will be abolished, and the new troops fill the functions also of policing the Capital.

ACTIVITY IN THE BORDER PROVINCES

As in Manchuria, with Russia and Japan, so with the French in Yunnan, China is having her hands full in preserving her authority, but Yunnan is almost inaccessible, so the world hears little of any trouble. Only occasionally news drifts through to the coast, which indicates the way the wind blows. The building of the French railway to Yunnanfu has so far been free from any unpleasant diplomatic incidents, but in view of the professed policy of France in building the Yunnan road, China is naturally suspicious of her actions, and is taking every means to safeguard her integrity. The creation of the two modern drilled army divisions for this remote province has received the urgent attention of the Central Govern-



ment, for only one brigade of infantry and two battalions of artillery have been organized. According to native reports, which are perhaps highly exaggerated, the French have distributed some 20,000 Annamites throughout Yunnan, many of them are engaged in the illicit trade of gun running. These men, while having every

appearance of belonging to the Indo-Chine army, are settling in the towns along the railway, adopting some trade or exploring the mountains in search of minerals. The Chinese frontier police and authorities are puzzled to account for the movement, and afraid to interfere pending definite instructions from Peking. Peking has already instructed the Viceroy to erect forts along the frontier, and has allowed the sum of Taels 2,000,000 from the central treasury towards defraying the expenses of organizing the new divisions. China has also served notice on the French Minister, that she will enlist her own guards for the protection of the Railway, and requested the withdrawal of the French guards from the Yunnan frontier. Now that the railway is completed to Yunnanfu, the question of guards will be raised, and unless China makes some resolute effort to protect the line in conformity with French demands, the Manchurian issue will be duplicated in the South.

The southern provinces of Yunnan and Kuangsi along the Tongkong border, are the favorite haunts of revolutionaries and secret anti-dynastic societies, whose activities are a source of great anxiety to the provincial authorities and the Central Government. The prevalent state of unrest in these districts is a constant menace to the relations between China and France, and a slight disturbance would readily give the latter country sufficient justification to take strong measures for the protection of her interests. The last incident

GEN. WANG TUNG-CHI,
DIVISION GENERAL, PEIYANG ARMY, TIENTSIN.

in which Chinese troops invaded French territory in their pursuit of insurgents came very near costing the Empire another surrender of rights as indemnity for the wounded feelings of France.

HIS EXCELLENCY, CHU CHIA-PAO,
GOVERNOR OF ANHUI PROVINCE, COMMANDER-IN-CHIEF OF PROVINCIAL FORCES.

In Manchuria, the Hunghutzes, or "red beard" bandits, afford an ever ready pretext for Russia or Japan to increase their troops for the protection of their interests, and these revolutionaries in the south are a like convenience to France. The failure of the Chinese Government to quell these bands may some day cost her dear, for at any time Russia, Japan, or France can conveniently justify a "vigorous policy" towards China, through her inability to guarantee protection. And this in spite of all existing treaties and compromises to respect her integrity. It is difficult to see how other disinterested friendly nations could interpose any effective protest, against such terms as might be imposed on China, as a result of such intervention in her affairs. Herein lies one of the greatest dangers to the preservation of China's integrity.

That her high officials are keenly alive to this contingency is evidenced by the appropriation of funds from Peking for the Yunnan Army, and the peremptory orders to the Governor of Kuangsi to form at once his quota of the new forces, and similar urgent instructions to all the border authorities. The Kirin government has been permitted to appropriate Taels 150,000 out of the Imperial Salt Revenue towards the expense of the division allotted to it, and is given one year to complete the organzation.

Russia has been reinforcing the troops in the border city of Kiackta, ignoring the protest from Peking through the authorities at Urga. At the same time she has also adopted a new plan for the extension of her military system in Northern Manchuria, which embraces the organization of an army corps of 25,000 troops with general headquarters at Harbin, where a Cossack regiment and three companies of artillery will be permanently located as railway guards.

To the activity of Russia towards regaining her lost ground, commencing with the appropriation of funds for the construction of the Amur Railway, can be directly traced the attitude of Japan in forcing China's hand in the Antung-Mukden Railway, and the concession for the Kirin extension to Hanchun.

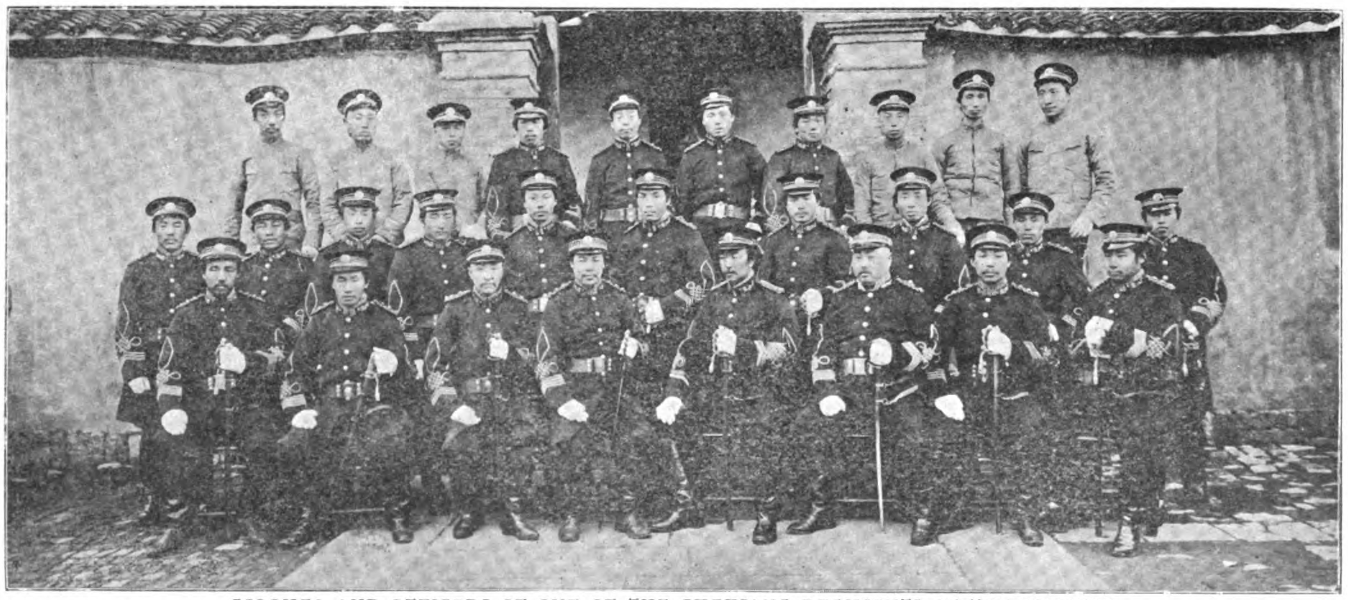
According to the new organization scheme, the greatest attention is being directed towards building up a large effective force in these

GENERAL WONG HUI CHENG,
COMMANDER OF THE MUKDEN TROOPS.

GEN. KSU KOU-CHUN, BRIGADE COMMANDER, PEIYANG ARMY, TIENSIN

COL. TIEN TSUNG YU, CHIEF OF STAFF TO THE VICEROY OF CHILI (PEIYANG ARMY).

GEN. TUAN CHIH-KUEI, FOR SOME TIME CHIEF OF THE TIENTSIN MODERN POLICE, IMPEACHED FOR RECEIVING GOVERNORSHIP OF HEILUNGKIANG BY BRIBE.



COLONEL AND OFFICERS OF ONE OF THE CHEKIANG REGIMENTS OF THE LU-CHUN.

border provinces. Of the 36 proposed Divisions, Yunnan will furnish 2, Szechuen 3, Kansu 2, and the New Dominion one. All of these districts are in remote sections of the Empire, rarely visited by Europeans and according to such reports as reach us from occasional travellers, the military propaganda is being actively carried out. Dr. W. Edgar Geil, who explored the whole length of the Great Wall, was deeply impressed with the fact that all over the country, even in the remotest villages, he found groups of young men drilling. In some cases there were only ten to fifteen men, but it all appeared to be part of a concentrated plan, the precise object of which the people themselves appeared ignorant. Dr. Geil's personal opinion is that it was all part of a general plan to prepare secretly an enormous Army. The results of Dr. Geil's trip, and his observations about the military preparations in Kansu were published in the early part of last April, appearing in the *North China Daily News* of the 21st of the month. It is a remarkable coincidence that, immediately following its publication, the news came from Peking on the 27th of April, that the Waiwupu had requested the Foreign Ministers to forbid missionaries penetrating into the frontier provinces, as the people were in a crude state of civilization and the presence of foreigners might give rise to trouble. This solicitation for the welfare of the missionaries is in somewhat striking contrast to the ordinary attitude at Peking over their safety. As other foreign travellers have to be provided with passports to travel outside certain limits, it was well within the power of the government to prevent their

VICEROY TUAN FANG, IN WINTER ROBES

H. E. TIEH LIANG,
PRESIDENT OF THE ARMY BOARD, ETC.

H. E. CH'ENG HSUN,
MILITARY LIEUTENANT GOVERNOR OF KIRIN, FORMER TARTAR GENERAL OF NANKING AND CANTON, GOVERNOR OF ANHUI, ETC.

penetrating into remote regions, but it is different with missionaries, who have larger liberties of action under treaties. The incident points to the fact that the publication of Dr. Geil's observations and personal conclusions were not relished by the Board of War. Greater weight was given to the matter almost immediately afterwards. In May, His Excellency Tieh Liang, the President of the Board of War, proposed to the Regent his transfer to the Viceroyalty of the Shenkan, with the avowed purpose of personally training the Kansu troops, and when this request was refused by the Regent, he suggested an inspection trip into Mongolia, Kansu, and Tibet, taking with him two battalions from the 1st Division of the Lu-Chun as escort.

These facts forcibly illustrate the keen interest displayed by Peking to safeguard her frontiers. The activity of the Russians on all sides of Mongolia, the New Dominion, and Chinese Turkestan, and the periodical insurrections on the borders, have alarmed Peking, and strenuous

GEN. MA LUNG-PIAN,
CHIHLI ARMY.

efforts are being put forth to create an army for defense. Some of the Border authorities have ignored the repeated commands of the Central Government to carry out their allotted share in the new army scheme, and under the pretext of insufficient funds have not made rapid headway, despite the urgency of the situation. The Throne has admonished them again and again that they must raise the funds, and, if they fail to comply within a prescribed time they will be severely dealt with.

In Szechuen, only one brigade of infantry of the Lu Chun has been organized and equipped, where their quota calls for six. In Kansu, which is expected to provide two Divisions, there is one Brigade of Infantry, two squadrons of cavalry and two battalions of artillery already in active service, though it is clear that this force is being rapidly augmented. Hsin Chiang Province or the New Dominion, is allotted one division, but to date only one regiment of infantry, two squadrons of cavalry, and two battalions of artillery are in evidence.

MONGOLIA

Mongolia does not enter into the new organization scheme, but the issues at stake there loom large on the political horizon, and steps are being taken to strengthen the hold of China on this agglomeration of independent tribes, and cement their adherence to the dynasty. Mongol Princes are in high favor at Court, and the Regent is appointing them to important offices. One of the principal Mongolian chieftains, the Prince of Turgut, recently completed a military schooling in Japan, and on his return to Peking in May organized a Mongolian Society with the powerful Prince Na, the Dzassak of the Khalka tribe, as president, for the purpose of promoting reforms in Mongolia. The Prince of Turgut believes that the very existence of his country is threatened by Russia, and only a united front can save it from ultimate absorption. The Regent heartily indorses these views and intends to appoint him to train the armies in Western Mongolia when he returns to his dominions, in the meanwhile appointing him to duty at the Palace. The Mongol Prince of Kharach'in has also been honored with the right of Imperial entree, and other lesser chieftains have received marks of the Regent's favor.

LT. GEN. CHIANG KUEI-TI,

ONE OF CHINA'S FOREMOST GENERALS. COMMANDED GARRISON AT PORT ARTHUR DURING CHINO-JAPANESE WAR. IT ISCLAIMEDTHAT THE UNSEXING OF JAPANESE PRISONERS BY HIS ORDERS CAUSED THE TERRIBLE REPRISALS ON THE CAPTURE OF THE STRONGHOLD BY THE LATTER. IN COMMAND OF YUAN SHIH-KAI'S TROOPS AT PEKING IN 1901. COMMANDER-IN-CHIEF OF THE KANSU ARMY. NOW ON SPECIAL SERVICE IN PEKING IN COMMAND OF IMPERIAL GUARD CORPS.

In fact the important questions involving the defense of the dependencies are receiving a large share of the government's immediate attention. Thibet, Mongolia, Hsin Chiang, and Manchuria are being rapidly colonized and becoming more Chinese than ever. Enormous numbers of emigrants are annually finding new homes in these lands hitherto given over to the wild tribes of the borders. Even into Tibet and the Ordes steppes the colonization is being pushed. Active government aid is extended to those desirous of settling in Manhuria and the extreme northern provinces are

GEN. YU CHANG CHING,
NANKING.

thus being brought under cultivation. A traveller, recently returned from an extended visit through Mongolia, affirms that an army of nearly 40,000 armed with modern rifles, and drilled by Japanese instructors, has been placed

COLONEL SHENG,
DIRECTOR OF NANKING MILITARY SCHOOL

during the last two years in Urumtchi in Hsin Chiang or Chinese Turkestan, and the old frontier ports of Kuldja and Bulomtokhoi in Tarbagatai have been greatly strengthened . These figures must be greatly exaggerated. In Kobdo and Uliasseitai, where Russian influence is strongest in Mongolia, the activity of the Chinese government has alarmed the Russian authorities, as troops are being organized and drilled by a Chinese officer educated by German instructors. In Eastern Mongolia there are also several large camps of Chinese troops. This activity is directed not only against Russian aggression, but also against the independent Mongolian Princes, who frequently borrow large sums from Russian agents, placing themselves in their power politically. The feverish anxiety of the government to prolong the Kalgan road to Kiakhta, and establish an automobile service temporarily, has not only the object of discomfiting Japan by a quicker service to Europe, but also to preserve the country from the Russians, and tighten its hold on the Mongol princes.

LT. GEN. MA YU-KU'N,

COMMANDER-IN-CHIEF OF THE CHIHLI FORCES FROM 1900 TO TIME OF HIS DEATH, SEPTEMBER 1908. JUNIOR GUARDIAN OF THE HEIR APPARENT, ETC.

It is proposed to make Hsining, Altaishan, Chahar, Kobdo, Ili, and Urga, division headquarters and concentrate troops at these points, but the difficulty of securing competent officers willing to serve in these outports has retarded the scheme. The military Governor of Ili has been instructed to proceed with the training of the modern force in his district, with financial assistance from the throne, as it is in this district that Russian aggression is most to be feared. Wireless telegraphy will be installed in Mongolia and Chinese Turkestan in connection with the land wires in Kansu, for the more rapid and economical means of intercourse with these distant districts. It is also proposed to recruit and train a regiment of Tibetan Lamas along modern lines and competent officials are to be sent out for the purpose. As the Lamas have demonstrated good fighting qualities, it is believed they will make a decided addition to China's fighting force.

LT. GEN. FEN CH'E OF THE BORDERED WHITE MONGOL BANNER CORPS

LIEUTENANT GENERAL TSENG-CHI, OF THE MONGOL PLAIN YELLOW BANNER CORPS; TARTAR GENERAL AT CANTON, ETC.

LT. GEN. CHANG TE-YI, OF THE BORDERED BLUE MONGOL BANNER CORPS; MINISTER TO GREAT BRITAIN, ITALY AND BELGIUM IN 1901

CAVALRY HORSES

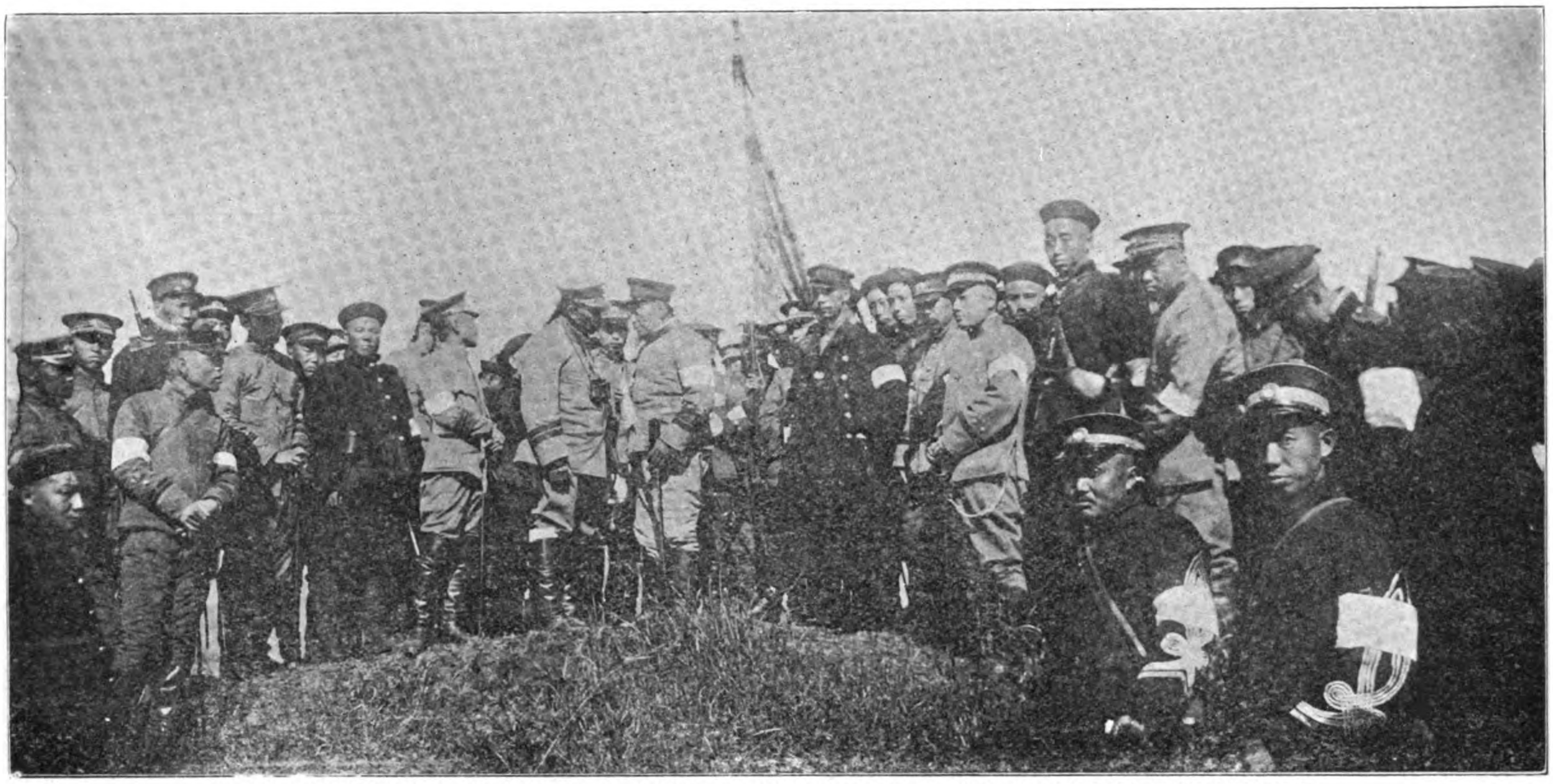
Each of the 36 divisions of the Lu Chun is to have one cavalry regiment of 116 mounts, or a total of 44,000 horses for the entire army, including general officers and staff.. The supply of this large number of serviceable war horses of sufficient height and strength has led to the establishment of a stud farm in the north, and plans for one in the South. The farm for the North is located near Hsin-mun-fu, where scientific breeding is carried on to improve on the wild China pony of the Mongolian steppes. The Chinese, unlike the Japanese, are excellent horsemen, and even with the undersized Mongolian pony they make good cavalrymen.

MILITARY SCHOOLS

Under the central direction of Gen. Tuan Chi-jui, three military academies now exist in China, at Tientsin, Wuchang, and Nanking, and there is one to be built at Taiyuanfu in Shensi. Elementary and middle schools are to be established in all provinces. The school at Peking will be the central or Staff College, where special courses for the different arms of the service can be taken by the provincial graduates. The students for this college will be selected by competition examination by a special commissioner, and after graduation are to receive direct appointments from the Throne. The regulations and curriculum have been approved and communicated to the provincial authorities. Special attention is given to the young nobles, who are expected to fill the higher grades of the new army, and strict examinations are already being held so they will attain a certain high standard. Many sons of Viceroys and other distinguished families have been ordered by the Regent to attend the Nobles' College and learn things to prepare them for future responsibility, instead of wasting their days and fortunes in the pursuit of pleasure in Peking. Foreign military instructors, principally Japanese and Germans, are to be found in all the established schools, and while the German drill system is almost exclusively employed the organization and routine is distinctly Japanese.

A GROUP OF CHINA'S OLD FIGHTING CHIEFS

RIGHT TO LEFT: LT. GEN. CHIANG KUEI-TI (SEE PREVIOUS PAGE); H. E. HU JUN-MEI, LATE GOVERNOR OF PEKING (SEE NOTE); GEN. CH'O HA-PU, TARTAR GENERAL AT CHENGTUFU, SZECHUAN PROVINCE; LT. GEN. HSIU-CHI OF THE PLAIN YELLOW MANCHU BANNER CORPS; THE LATE LT. GEN. MA YU-KUN: H. E. SUNG SHOU, VICEROY OF THE MIN-CHE (FOOCHOW), FORMERLY PRESIDENT OF THE WAR BOARD, TARTAR GENERAL, ETC.



THE CHINESE ARMY MANEUVRES IN ANHUI.—THE VICEROY TUAN FANG CONSULTING WITH GEN. HSU

A number of students are being sent annually abroad for military study. Last year 15 selected youths were dispatched to France for six years' study. The school facilities are provided free by the French Government, and their expenses defrayed by the Chinese Board of War. These latter amount to about gold $400 per year. A batch of 15 graduates from the French Academy at La Fleche have returned to China, and are doing good work. Similar detachments are to be sent annually to France for study, and some to Germany. Two students recently graduated from the American West Point academy, with a high standing in their class, and are now in Germany completing their studies. According to a list compiled by the Chinese Y.M.C.A. in Tokyo there were 1,000 Chinese students in the military schools of Japan in 1908, besides a large number actually with the Japanese army.

The proposed preparatory provincial schools, 26 in number, will be responsible for general elementary instruction, and after a three years' course, the pupils pass to the academies for final development into officers. The course will consist of two years' theoretical and four months' practical training, with a supplementary course of 18 months in the war college. On graduation the students are commissioned as lieutenants, and after two years' active service, the best talent is selected for the course at the Central Staff College at Peking for special and advanced courses. Staff appointments and higher positions in the army will only be open to those who have successfully graduated from the Staff College.

Up to date only a few of the preparatory schools and three of the academies exist. In some provinces attention has also been given to special schools for medical and veterinary work. Topographical work has been managed with excellent results by special instruction in nearly all provinces, and the country is being remapped and surveyed by the military

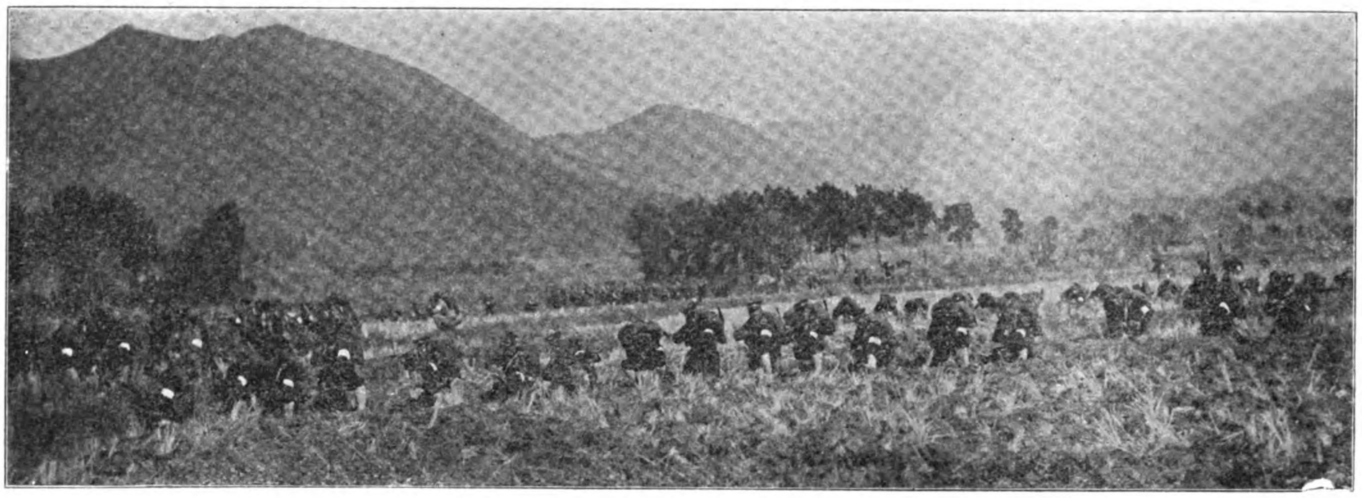
THE BANNERS

The organization and equipment of the Lu Chun will be accelerated, if the proposed abolition of the Banner Corps is carried into effect. This much needed reform has been discussed, and certain initial moves recommended, such as forcing the Bannermen to adopt commerce, agriculture, and industry. The eight Banner Corps, or special Manchu Army, are composed of the descendants of the Manchu, Mongol, and Chinese armies which overturned the Ming rulers and conquered the country for the present dynasty. These corps are designated as the Bordered Yellow, Plain Yellow, Plain White, Bordered White, Plain Red, Bordered Red, Plain Blue, and Bordered Blue Banner Corps. In these divisions all descendants of the original Manchu, Mongol, and Chinese conquerors are enrolled. The entire population of Peking and Manchu colonies in other parts of the Empire belong to this force, which is organized into brigades, regiments, etc., with officers ranking from Lieutenant General downwards. All the officers and three grades

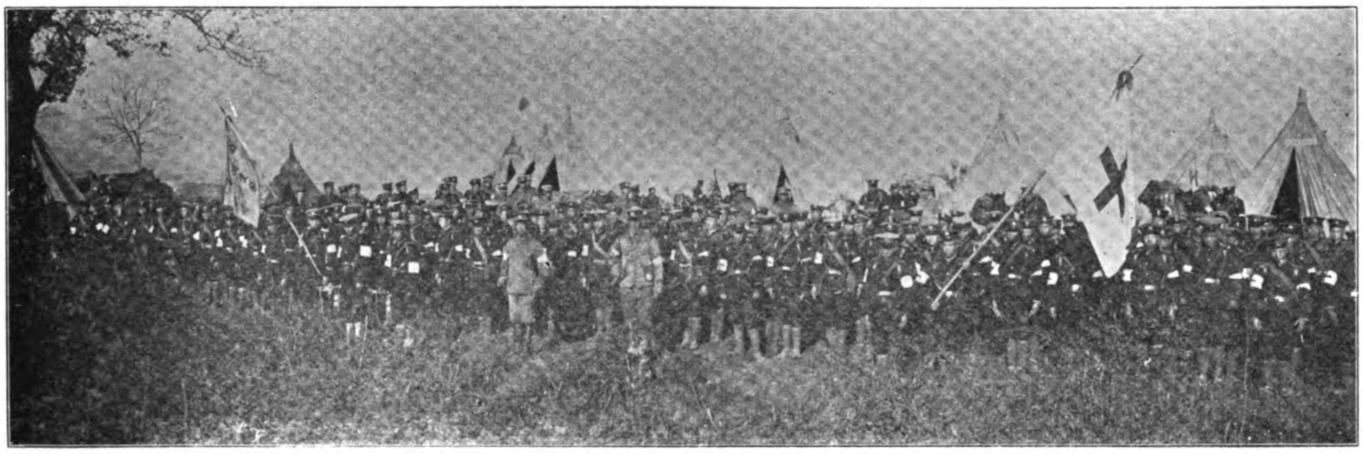
GENERAL YIN-CHANG AND STAFF AT THE ANHUI MANEUVRE. GENERAL YIN IS NOW MINISTER TO GERMANY

THE MANEUVERS IN ANHUI

A BATTERY IN ACTION.



ADVANCE ACROSS PADDY FIELDS.

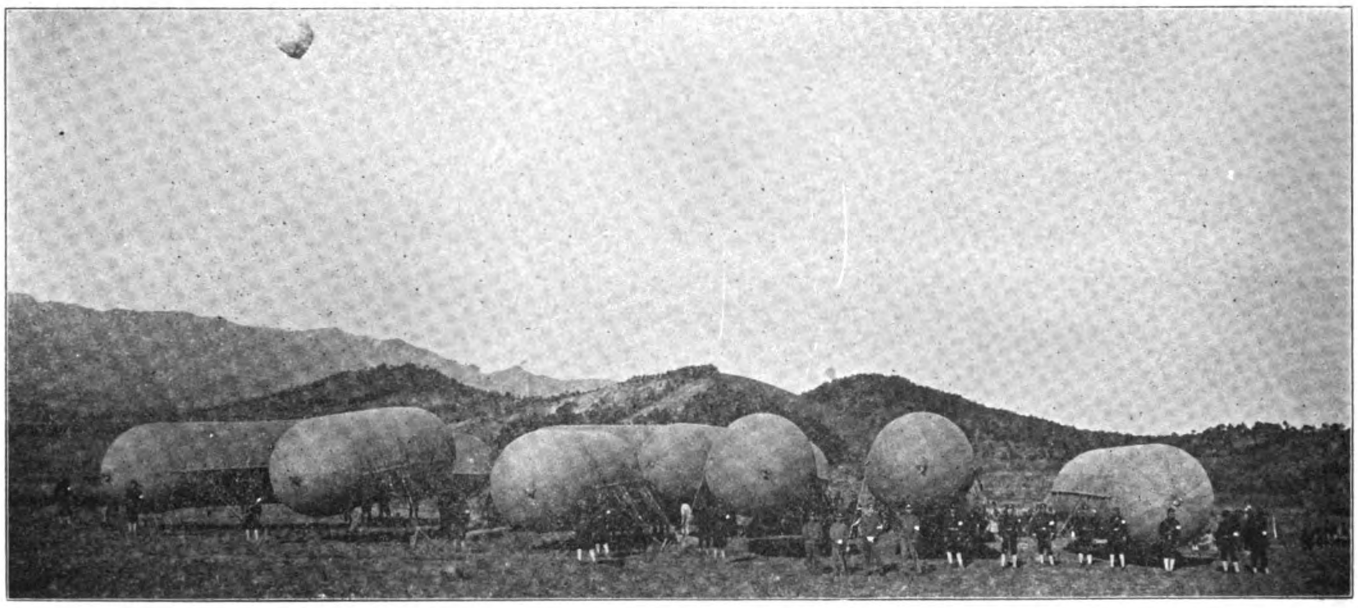


THE HOSPITAL CORPS

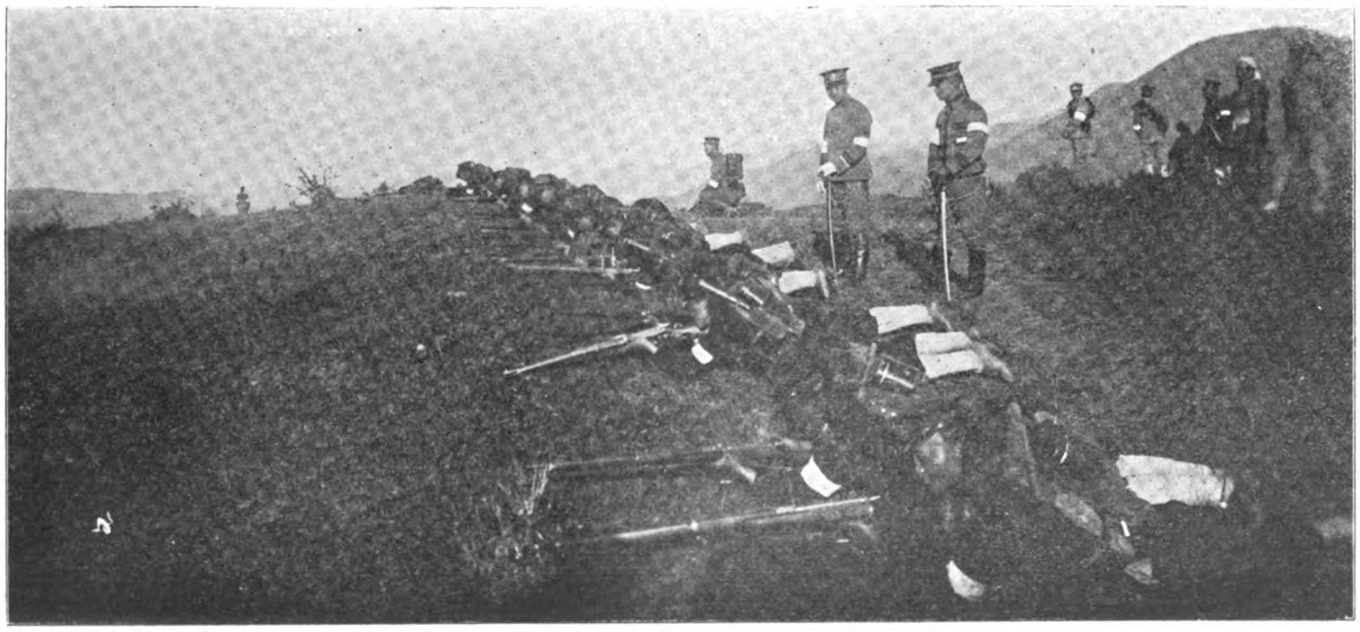
THE FLOATING BAMBOO POLE BRIDGE.

THE ANHUI MANEUVERS

THE BALLOON SECTION AND ASCENSION.

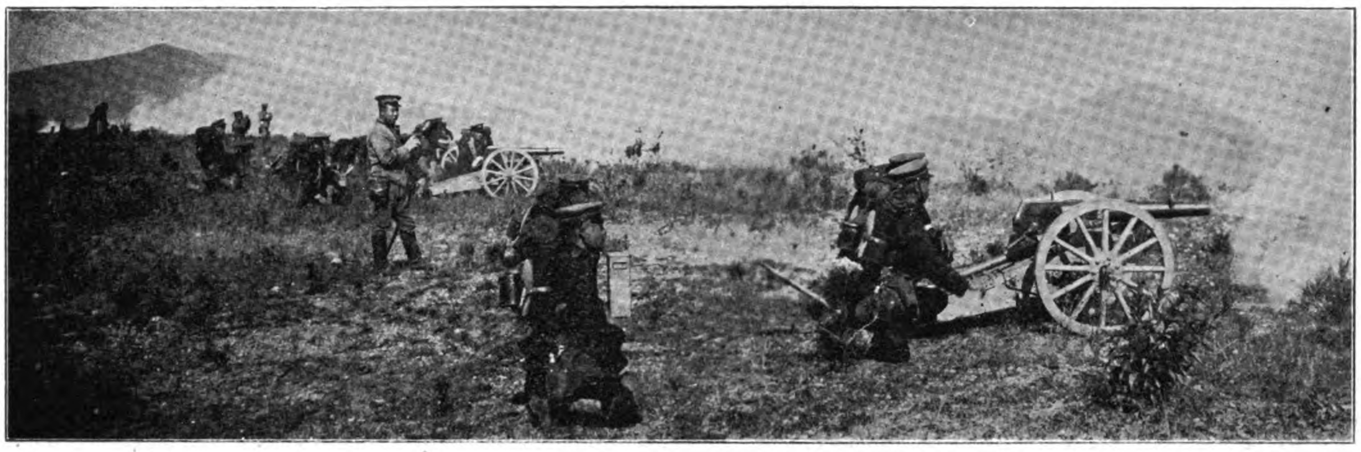


THE BALLOON BRIGADE & ASCENSION.



INFANTRY HOLDING A HILL.

THE ANHUI MANEUVERS

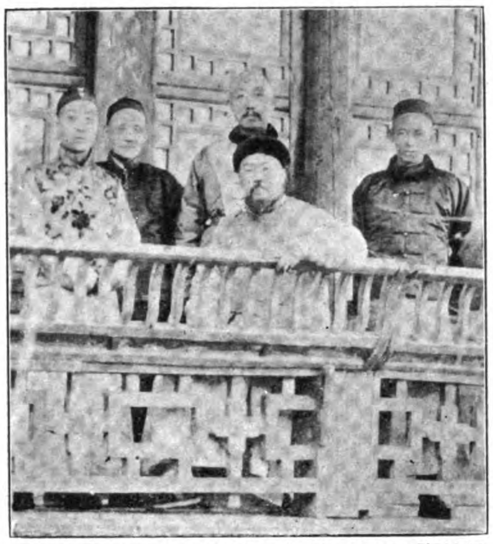


THE MAXIM BATTERY AT WORK

of privates receive actual pay, especially those detailed for service in the old Manchu Imperial Guards Division, and other forces detailed for the defence of Peking and its approaches, or the policing of Imperial pleasure grounds, palaces and mausoleums. The new Imperial Guards are to be selected from the old organization. In nearly all the provinces there are Manchu garrisons, but without organization or efficiency and utterly incompetent to cope with any anti-dynastic movement. The new Lu Chun under direct control of Peking, loyal to the Throne, will in the very nature of things gradually displace or absorb the obsolete provincial Banner organizations. Many of the provincial bannermen will join the new army, and constitute a safeguard against mutiny. The post of Tartar General, or Military Governor in command of the provincial banner divisions, is a check on the Chinese Viceroy or Governor, and while he has no authority in administrative affairs, he ranks above the Viceroy or Governor. The Central Government is considering the abolition of this post, and placing the Bannermen under the jurisdiction of the regular authorities.

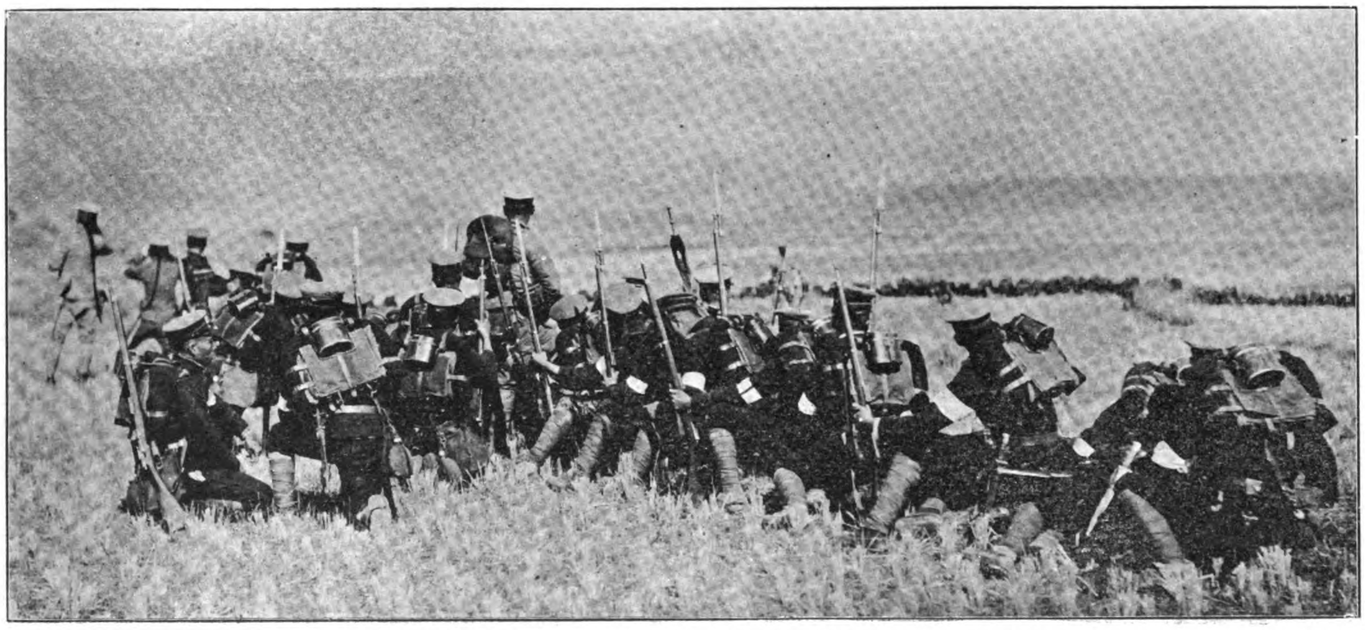
FINANCES

The actual working out of the new scheme in the allotted period of ten years, of which three have transpired, hinges on the all-absorbing question of finance. The central government will maintain out of the Imperial

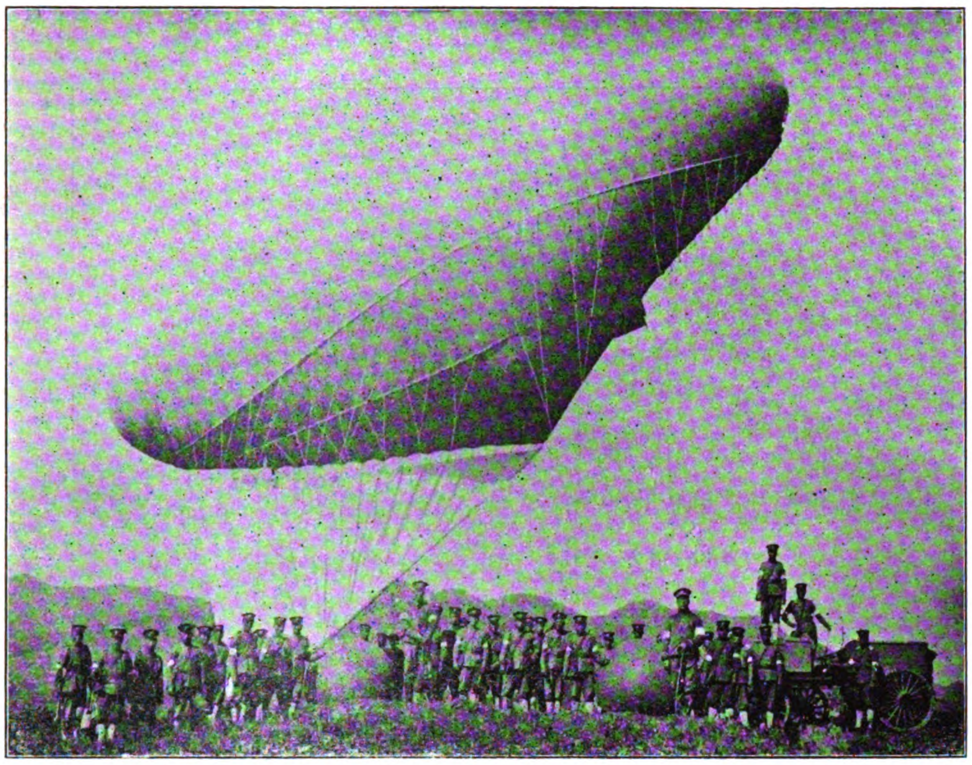


H. I. H. PRINCE PULUN, VICEROY TUAN FANG, AND ADMIRAL SA

Treasury, the Board of War, General Staff, military academies and arsenals, and also six divisions in the metropolitan provinces, in addition to the Guard Corps. It has been estimated that the entire budget will total Taels 90,000,000, of which Taels 25,000,000 is necessary for uniforms and equipment, and a similar sum for arsenals. Deducting the 6 divisions under the Board of War it leaves 30 divisions to be provided for by the provinces, or an expenditure of say Taels 2,000,000 to a division. The recent Governor of Shantung, which province is allotted one division, reported to Peking that his military expenses amounted to Taels 1,577,000, of which he could only raise Taels 1,200,000 in the province, and petitioned that the Central Treasury make up the deficit. The native press state, however, that when Viceroy Yang died at Tientsin, the Governor of Shantung, anticipating his demise, dispatched his son to Peking with huge sums of money to "influence" his appointment to the post. Governor Yang got the Viceregal "promotion" to Canton instead of Chihli. When one stops to consider that the Taotaiship of a good circuit is reported by the Chinese to be worth from Taels 50,000 to Taels 300,000 as in the case of Shanghai—which post Viceroy Yuan held for some years—an approximate idea of the value attached to a viceregal appointment may be gathered. And when a shortage of Taels 300,000, to equip an army division is reported by a governor, as a reason for his failure to carry out his share of the scheme, the virtuous indignation of the Regent and his refusal to accept the excuse and advance the Imperial funds is undoubtedly justified. Either the governors must toe the financial mark, and set up their soldiers, or the Regent will eventually take their official scalps, as he has many times threatened to do.

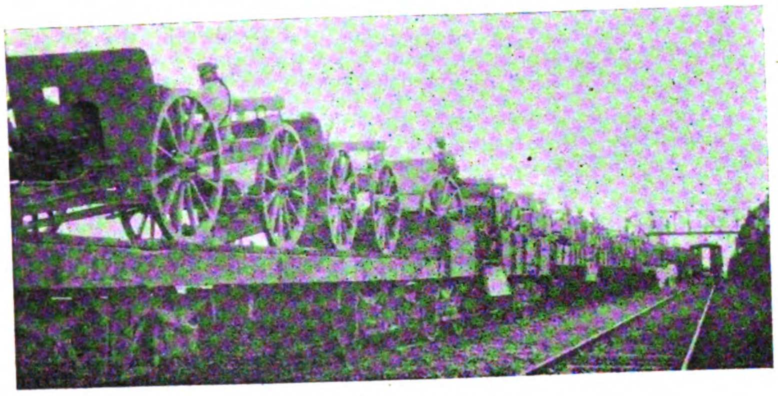


INFANTRY WAITING TO ADVANCE



THE WAR BALLOON

CHINESE TROOPS ON TRAIN



ARTILLERY ON TRAIN

A REVIEW AT TIENTSIN

MACHINE GUN SECTION AT ANHUI MANEUVERS

IN COMMAND OF THE HONAN TROOPS

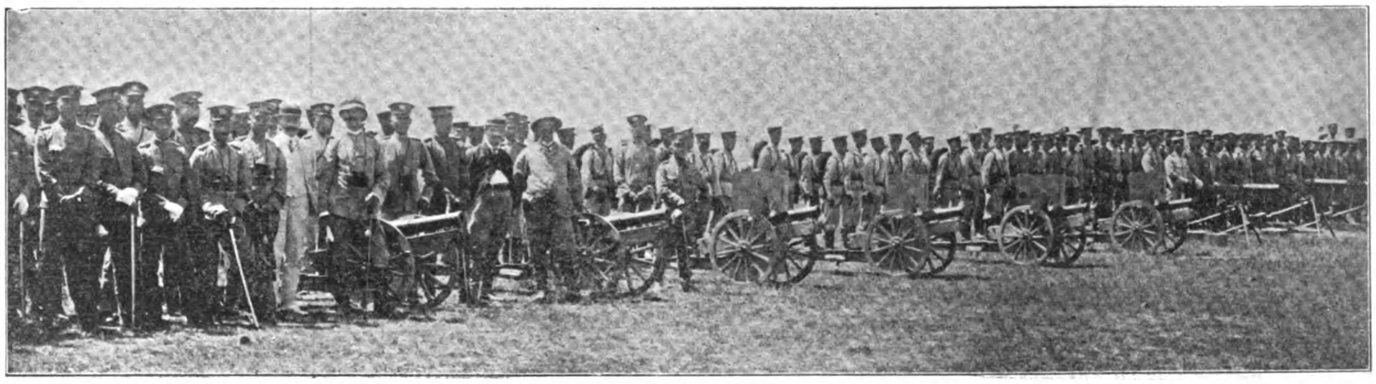
LIEUTENANT GENERAL TO-WEN,

A MEMBER OF THE IMPERIAL CLAN AND MILITARY LIEUTENANT GOVERNOR OF SHENKING PROVINCE (MUKDEN) IN COMMAND OF THE MANCHURIAN ARMY

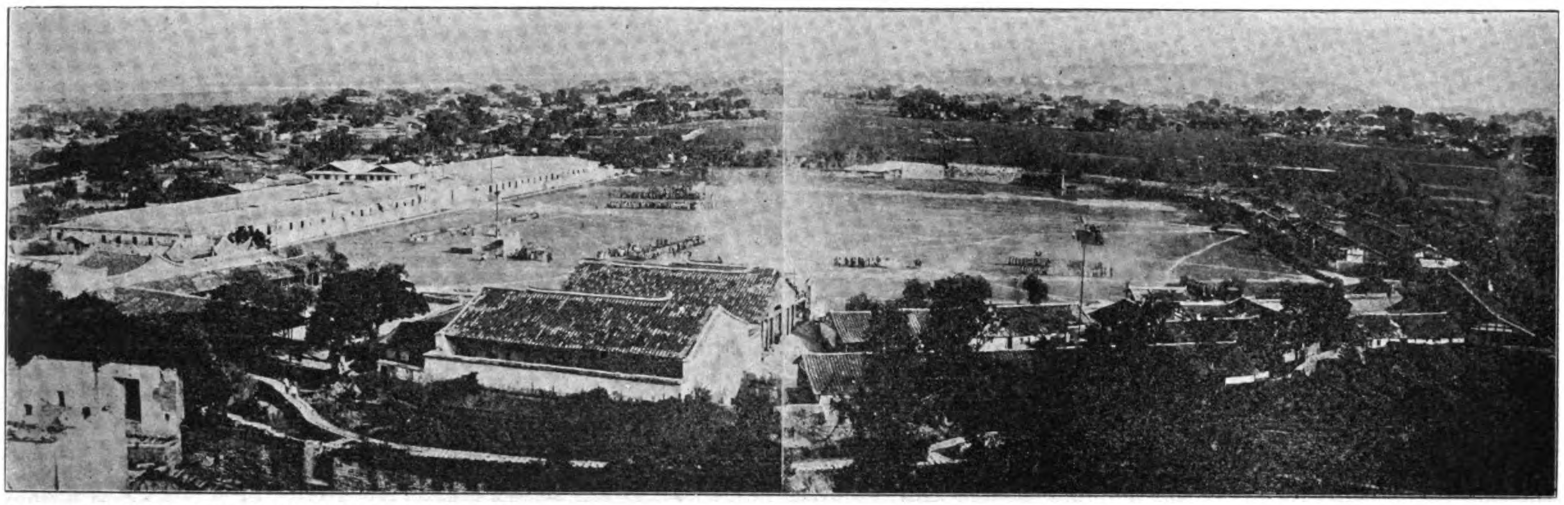
THE HONAN GENERAL IN SERVICE UNIFORM

AN ORDERLY

OFFICERS OF THE MANCHURIAN FOREIGN DRILLED ARMY



MAXIM BATTERY AT NANKING

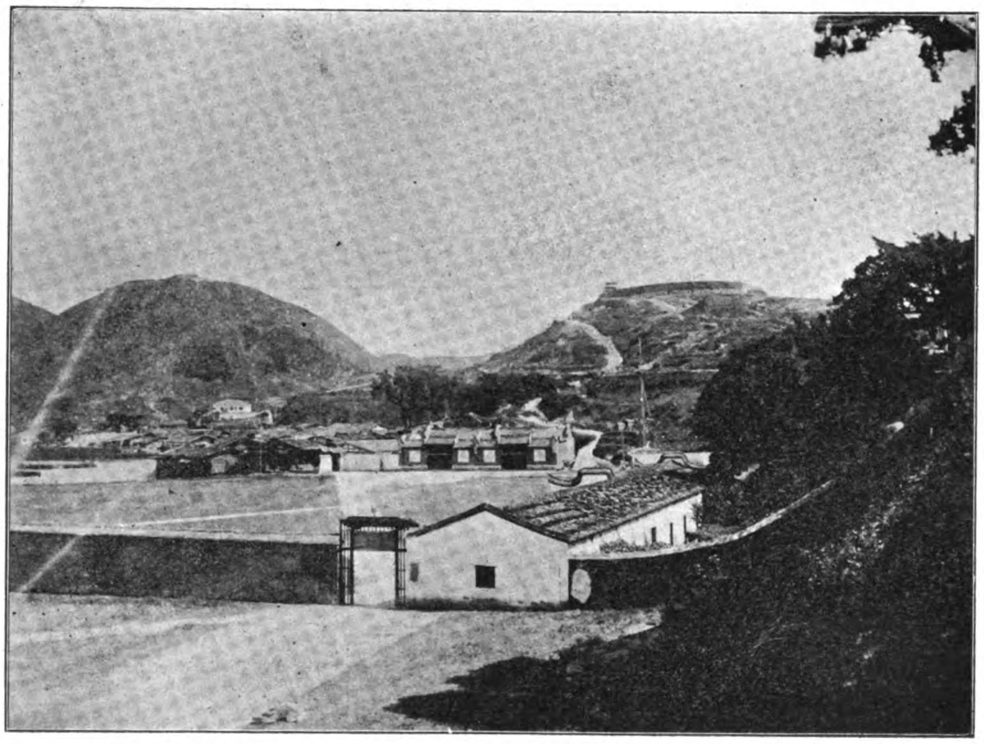


PARADE GROUND AND BARRACKS AT FOOCHOOW.

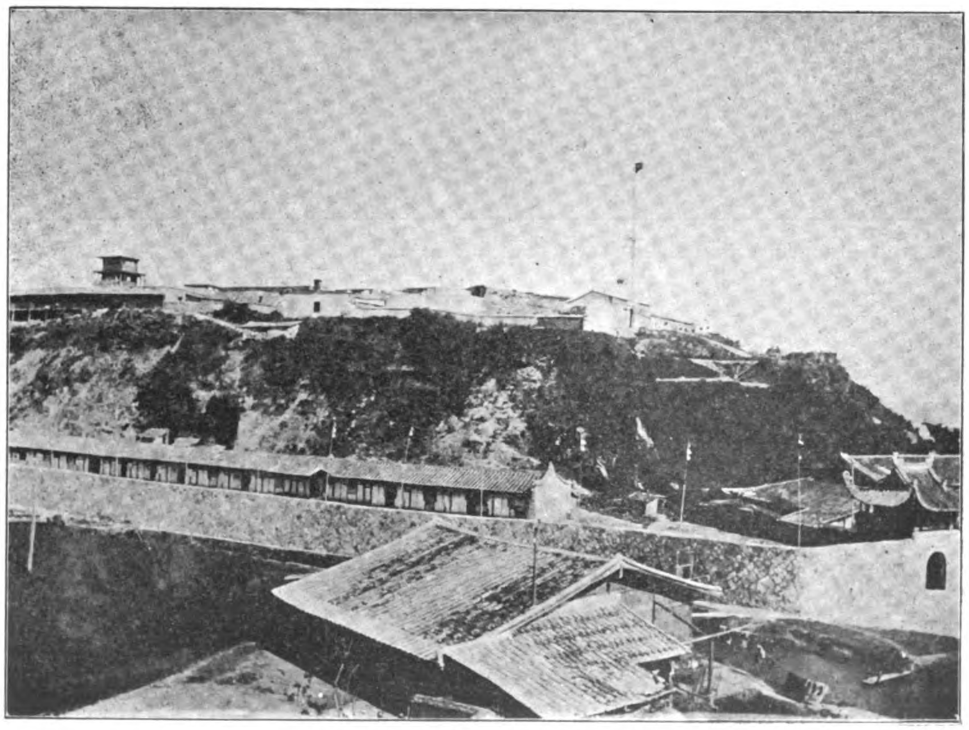
At any rate, the Regent apparently has no intention of spending the Imperial Treasure for this part of the scheme, however willing he may be to assume some share in the naval expense, alluded to in the last issue of the FAR EASTERN REVIEW.

Great advances have been made in production of small arms. In 1907 the arsenals and small arms factories in Wuchang, Te Chou, Canton, Shanghai, Chengtu, and Kaifeng Fu, began the manufacture of single-loading and magazine small arms. These factories can turn out a maximum of 50,000 rifles a year. In the production of guns, China's capacity is still smaller. The new scheme aims at equipping each division with 54 guns (36 field, 18 mountain). At present, however, the arsenals can produce no more than 50 mountain guns. The Government proposes to abolish provincial arsenals, and to establish instead, three large ones, situated in the north, center and south. Of these only the Hanyang arsenal exists.

A third difficulty lies in this—that while on paper the control of the Lu Chun or National Army seems complete, in practice it can hardly be considered so, since while provinces are responsible for the support of provincial quotas, the Central Government has little control over provincial finances. These are controlled by viceroys and governors. It would seem, then, that the success of the new schemes will to a great extent depend either on large loans or on a thorough reform of China's financial system. The former are not likely to be readily forthcoming; the latter is a problem to which no solution has been found.



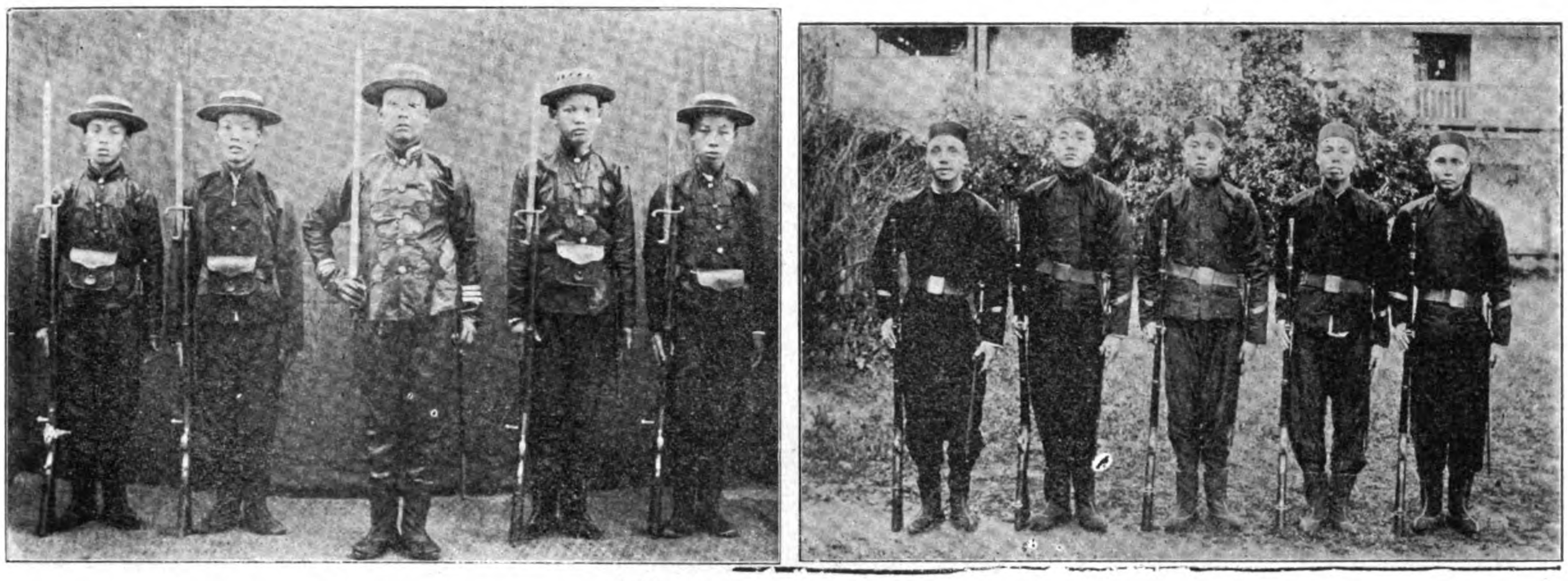
FORTIFICATIONS ON MIN RIVER.—APPROACHES TO FOOCHOW.



MIN RIVER FORTS.

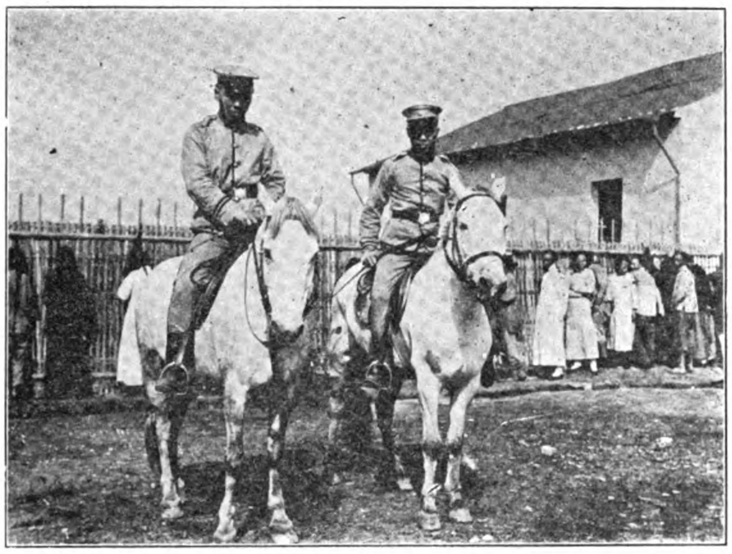
75TH ANNIVERSARY

The *Mining Journal's 75th Anniversary Number*. A copy of this interesting number, issued in celebration of the completion of three-quarters of a century of activity in the interests of the mining industry, has reached our desk, and we congratulate the publishers on its splendid typographical appearance and wealth of information. Its 103 pages are profusely illustrated and the special articles cover the mining industries of South Africa, Australia, Malaya with a generous review of the tin mining industry together with many features that make the number a most valuable reference to mining men the world over. In it is reproduced a sheet from the first number published in 1835. The *Mining Journal* is one of the most important international mining publications in the world and is always to the fore in all matters appertaining to this most important industry.



TYPES OF FOOCHOW SOLDIERY

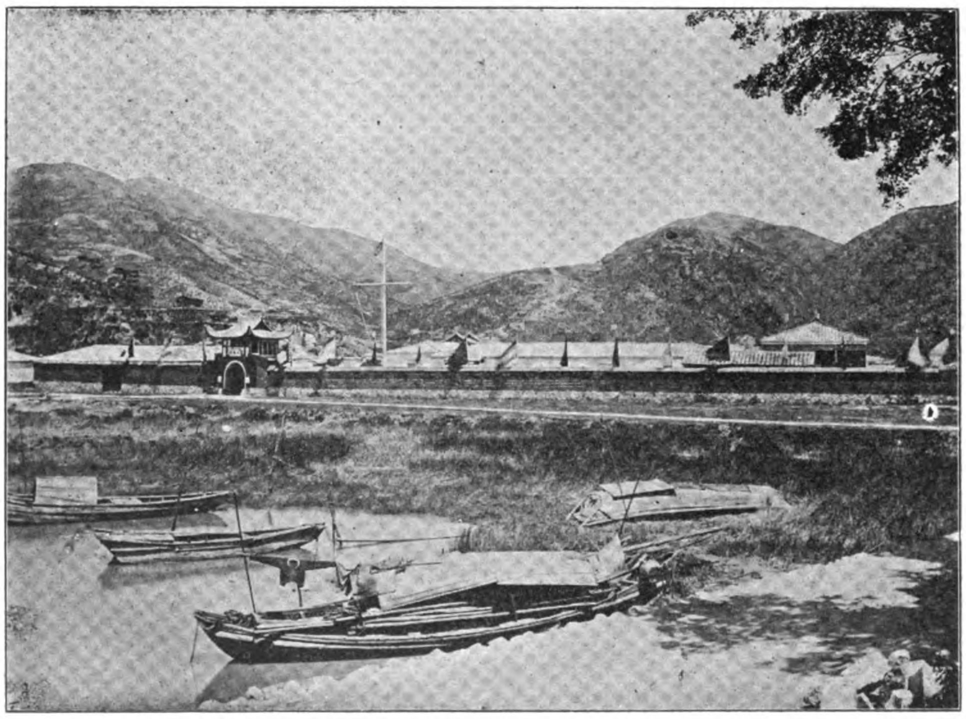
ORDERLIES



CHINESE CAVALRY TYPES

H. E. P'U-SHOU,

TARTAR GENERAL, FOOCHOW



BARRACKS AND WATER BATTERIES ON MIN RIVER

THE BOXER GENERALS

H. I. H. Prince PU CHUN,
SON OF PRINCE TUAN, APPOINTED HEIR APPARENT, BUT DISINHERITED IN 1901 WITH RANK OF DUKE. HAS NOT BEEN HEARD OF MUCH IN SEVERAL YEARS

Prince TUAN (TSAI-YI)
THE BOXER PRINCE, SENTENCED TO DEATH BY THE IMPERIAL CLAN COURT FOR HIS ACTIONS IN 1900, BUT COMMUTED TO EXILE TO THE NEW DOMINION, WHERE HE NOW RESIDES WITH THE PRINCE OF THE ALA TRIBE OF MONGOLS

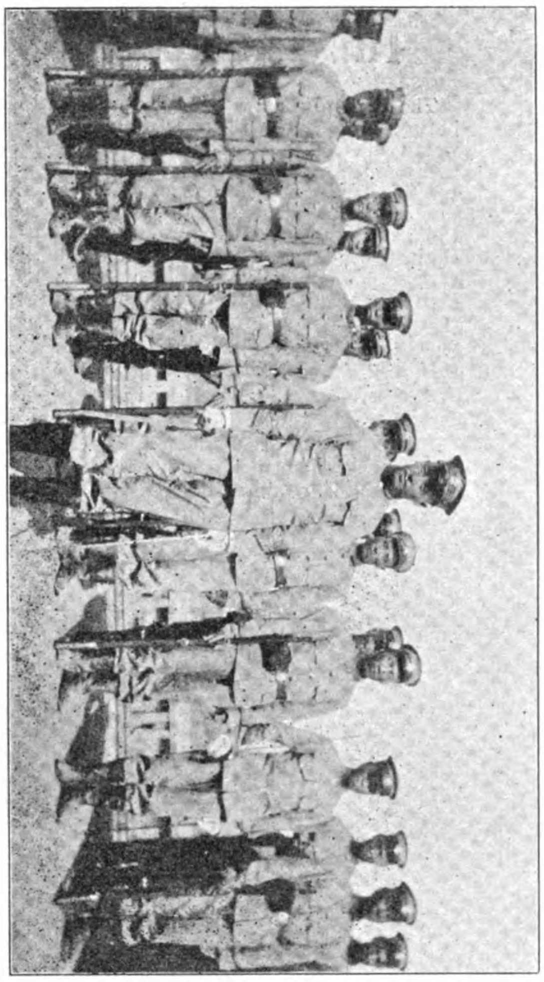
Gen. NIEH SHIH-CHENG

Lt. Gen. TUNG FU-HSIANG,
THE RABID MOHAMMEDAN LEADER OF THE BOXERS WHOSE MEN WERE INCESSANT IN THEIR FIRE ON THE LEGATIONS. DEGRADED AND EXILED TO KANSUH, WHERE HE DIED IN 1908.

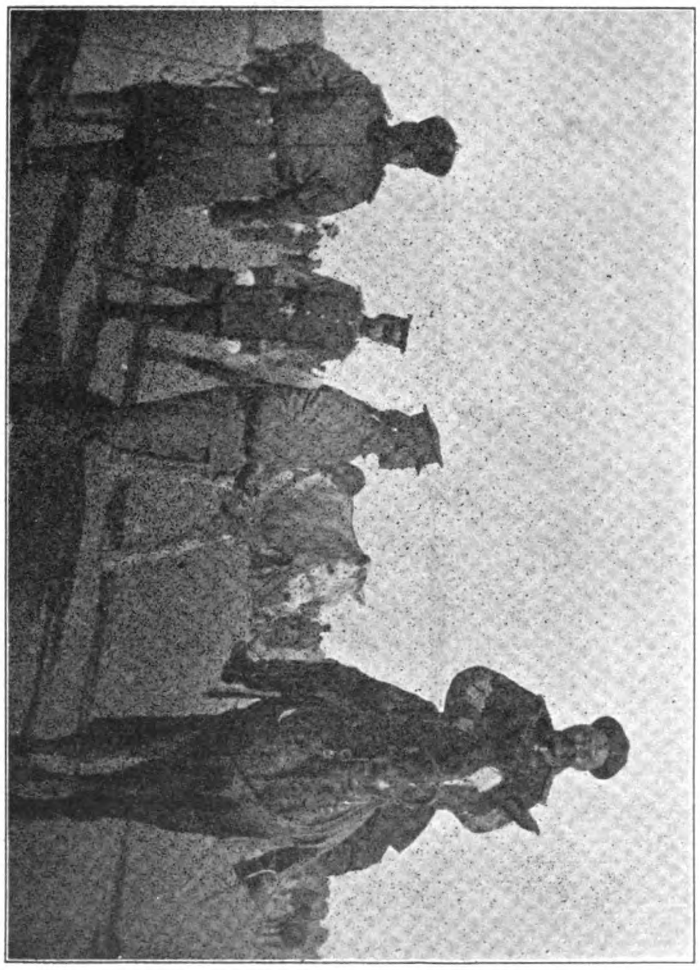
SON OF GENERAL NIEH

Gen. LIU YUNG-FU,
THE LEADER OF THE "BLACK FLAGS." DISTINGUISHED HIMSELF IN FORMOSA FIGHTING THE JAPANESE. DIVISION GENERAL, RETIRED 1906

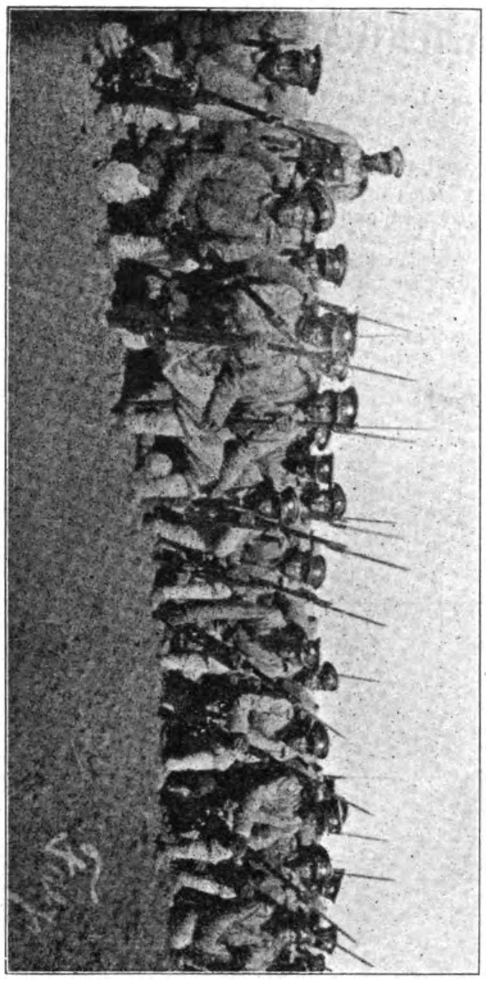
Gen. SUNG CHIN,
OF THE PEIYANG FORCES, WHO JOINED THE BOXERS



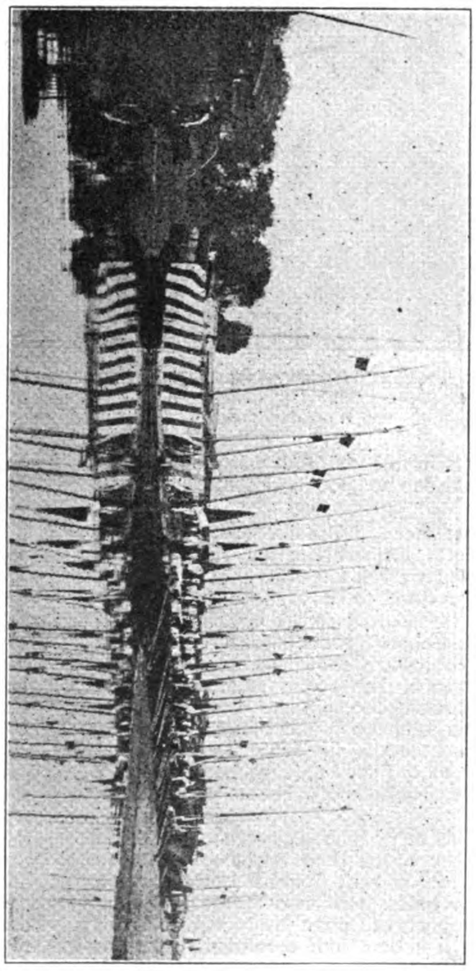
TIENTSIN MILITARY POLICE



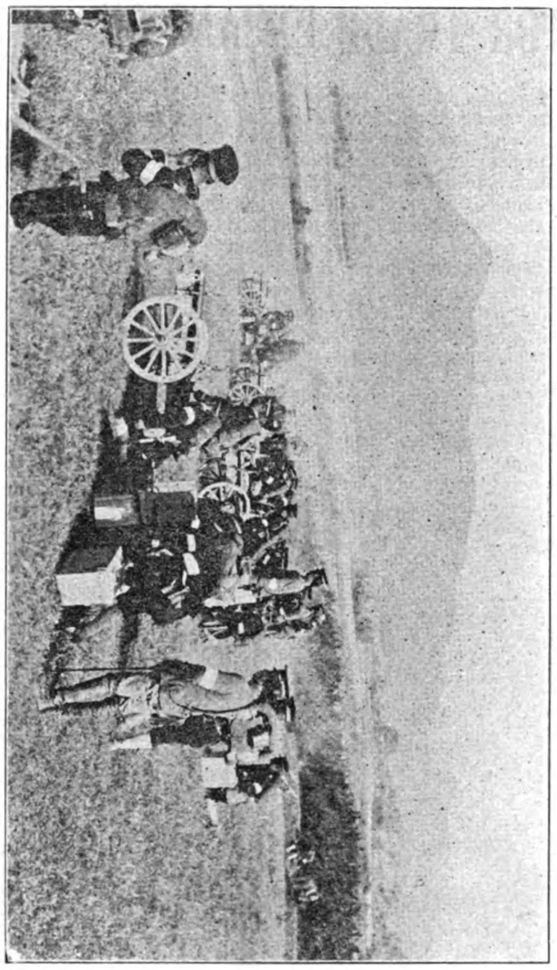
GENERAL FENG, CHILI DIVISION COMMANDER, MOUNTED



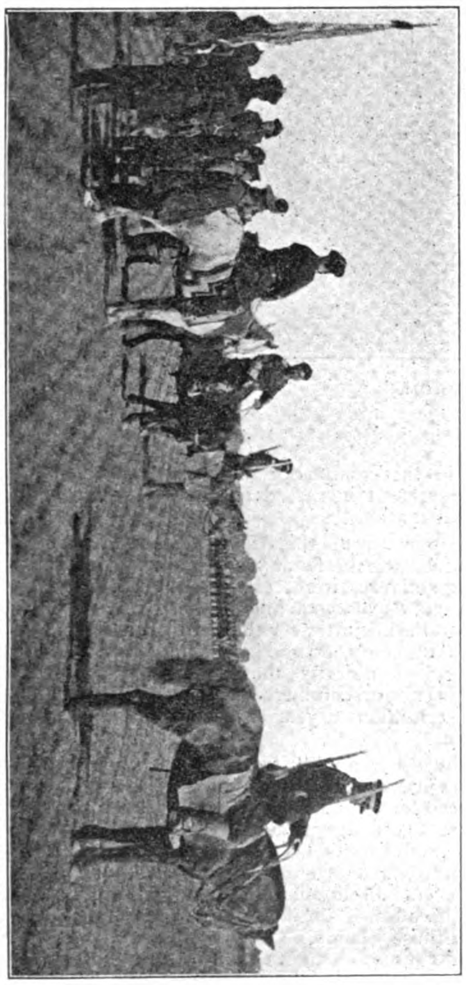
MODERN DRILLED SOLDIERS OF THE MANCHURIAN ARMY



GUNBOATS ON THE YANGTSZE



MOUNTAIN BATTERY, ANHUI MANEUVERS



TIEH LIANG AND YUAN SHIH KAI REVIEWING TROOPS AT THE CHILI MANEUVERS.

*THE PHILIPPINES AND AMERICAN OPPORTUNITIES FOR TRADE EXPANSION

The United States is importing annually between five and six hundred million dollars worth of tropical and sub-tropical products, and the demand for such products in this country is steadily increasing. Included in these imports are cacao, coffee, fibres, fruits, vegetable oils, rubber, silk, spices, sugar, tobacco, cabinet woods, gums and a variety of lesser articles. The most unprofitable trade that the United States has in its foreign dealings is with the countries from which these goods are purchased, where the balance of trade against us each year may be summarized as follows:

Brazil, seventy to eighty million dollars.

Cuba, forty to fifty million dollars.

India, forty to fifty million dollars.

Java, twelve to twenty million dollars.

Japan, thirty million dollars.

Mexico, ten to fifteen million dollars.

Bolivia, Peru, Ecuador and Chili, six million dollars.

Colombia, three million dollars.

Venezuela, three million dollars.

Straits Settlements, sixteen million dollars.

Ceylon, four million dollars.

This shows an aggregate annual balance of trade against the United States ranging from $234,000,000 to $277,000,000 dollars. And these countries are selling us nothing that cannot be produced in the Philippine Islands, to where, if unqualified free trade is established with the home country, the hundreds of millions of money now flowing from this country for investment in Mexico, Cuba, Central and South America will be diverted, and create industries or extend them in our own territory, thus tending to make the United States independent of foreign sources of supply for its tropical products, from which sources it now receives such small compensating trade in return.

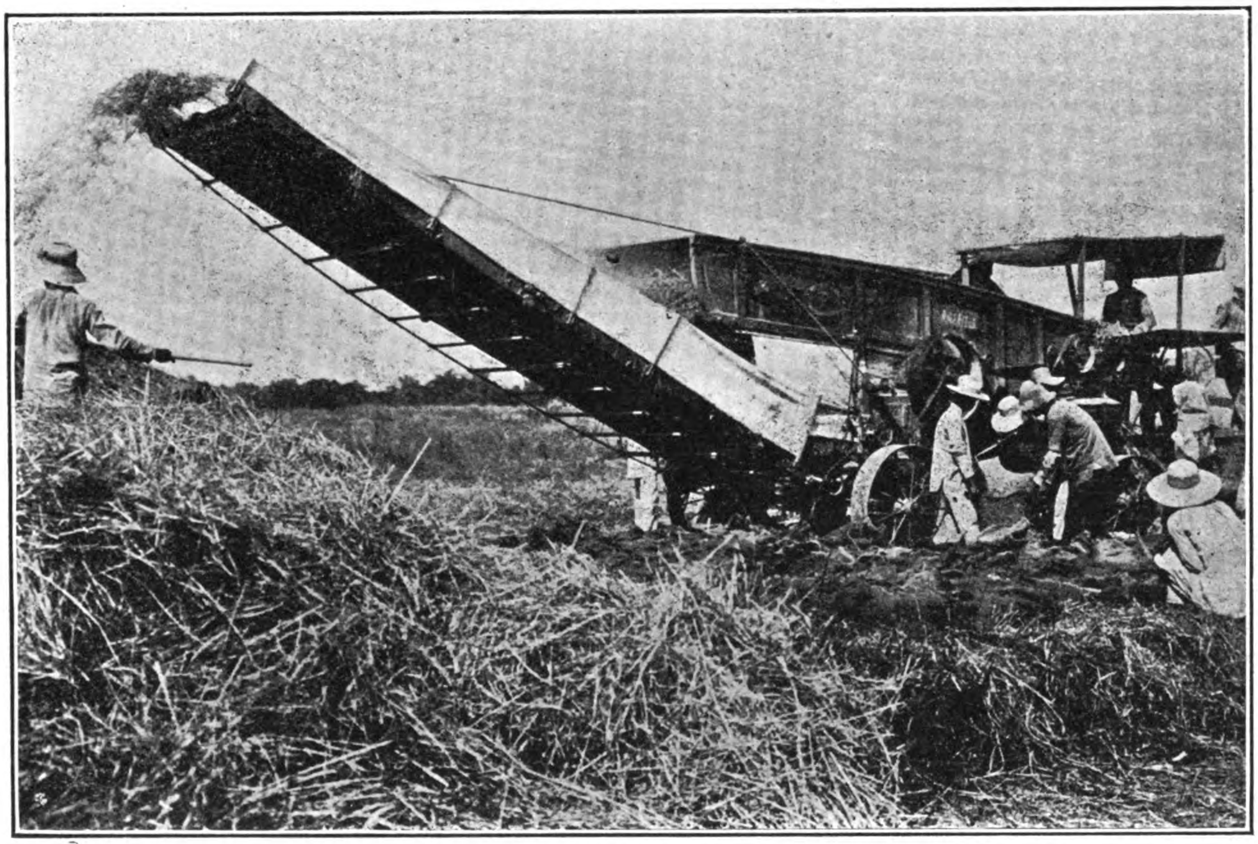
Most of the money we pay for Cuban sugar, tobacco and hard woods is spent in Europe, and nearly all of the tremendous amount we pay Brazil for coffee and rubber goes to purchase British and continental European goods.

In marked contrast to this showing is the commerce maintained with tropical countries by Great Britain and Germany. In 1906 the former sold Brazil over $45,000,000 worth, two and one-half times what we did, while her purchases from Brazil were less than half what ours were. In 1907 British exports to Brazil increased to upward of $59,000,000, while those islands took but $42,000,000 from Brazil. The case with Germany is not as striking, yet that country buys from Brazil only half what we do and sells there $10,000,000 more than the United States.

We import more of Brazilian products each year than do the United Kingdom and Germany combined, but we sell only one-fourth as much of our own products to Brazil.

In 1906 the United States purchased $88,000,000 of Cuban products and sold Cuba $47,500,000 of its own, showing a balance against us of $40,500,000. In 1907 this balance increased to more than $48,000,000. In 1906 Germany sold to Cuba $6,400,000 and bought there but half as much, while in 1907 German trade increased to more than $7,500,000 and Germany took but $3,200,000 of Cuban products in return.

Spain sold there over $9,000,000 worth in 1906, and bought less than $700,000 of Cuba's products, while in 1907 Spanish trade in Cuba increased by half a million over the preceding year, and imports of Cuban products into Spain dropped to less than half a million dollars in total. France sold $5,500,000 worth of goods to Cuba in 1906, which amount she increased to more than $6,000,000, in 1907, although buying less than $1,500,000 of Cuban products in return. Great Britain sold Cuba $14,000,000 in 1906 and nearly $15,500,000 in 1907, taking from Cuba but $6,000,000 of the products of that island in the first year and only $4,500,000 in 1907. The following, taken from a publication by the Bureau of Manufactures, Washington, on the trade of Cuba for 1907, is significant: "It is known that the increase on the part of the United States (for 1907) is largely due to machinery, construction material and provisions, while that of Germany and Great Britain probably represents more closely the augmentation of the natural market, the demand from these countries for machinery and construction material used in Cuban improvements not being great. Taking it all in all the gain of Germany and Great Britain is the most significant in the comparison, and must, to some extent, represent increased activity in seeking the Cuban market."



THRASHING RICE WITH AMERICAN MACHINERY, GOVERNMENT RICE FARM, MURCIA

The imports into the United States from British India for the fiscal years 1906, 1907 and 1908 respectively, were, expressed in dollars, $46,700,000, $59,000,000 and $44,500,000. Our exports to that country for the same years were, in round numbers, $6,400,000, $7,300,000 and $9,200,000. Ordinarily the balance of trade against us in our commerce with British India exceeds 40 millions a year and from that up to 50 millions.

Java furnishes an illustration of special importance with respect to our foreign trade that is ill-balanced for the reason that the importations from that island are principally of sugar, and it is the producers of beet sugar in the United States, who most strenuously oppose the free admission of Philippine products into this country because of the fact that sugar is produced in those islands. Our purchase of Javanese sugar amount in value to from eleven to twenty million dollars each year, and Java

*By Harold M. Pitt, special representative in the United States for the Manila Merchants' Association, and includes excerpts from Presentation Made before the National Association of Manufacturers and the Ways and Means Committee of the Chicago Association of Commerce.

takes of our products from one to two millions. We buy much more from Java than Great Britain and the Netherland combined, but those countries supply the manufactured goods that are consumed there, our contribution to the imports being insignificant.

The balance of trade against us in our commerce with Japan amounts to $30,000,000 or more annually. The exports from the United States to Japan in 1908 amounted in value to a little more than $33,500,000 as compared with $41,000,000 in 1907. The imports from Japan in 1908 were slightly under $64,000,000 as against $71,750,000 in 1907. The United States takes 30 per cent of all of Japan's exports, the largest in value of any country, but exports to Japan are much less than from the United Kingdom, and they have decreased in five years from 17 to 16 per cent of her total imports. Japan imported from Great Britain 22 per cent of her total imports in 1907, although that country took only one-sixth in value as much of Japanese exports as did the United States. Germany's exports to Japan increased 100 per cent in five years; exports from the United States to Japan showed a falling off; we are Japan's best customer.

FOUNDERS OF THE DAVAO PLANTERS' ASSOCIATION

It is estimated that there is from $750,000,000 to $800,000,0000 of American capital invested in the mines, railroads, agriculture and other forms of industry in Mexico, and with the natural tendency such large interests would have in diverting trade to this country for machinery, implements and general equipment, it is only reasonable that a large share of Mexico's purchases should be made here; and yet we buy from our neighboring republic over $10,500,000 more each year than we sell there. These are our own figures for it. Mexican customs returns make the balance against us in excess of $15,000,000.

The Pacific coast republics of South America, viz: Bolivia, Peru, Ecuador and Chili bought from us in 1907, $21,702,000 and sold to the United States $27,878,000, netting a balance against this country of $7,000,000. Colombia sold to the United States in 1907 $6,466,429 and took of our goods but $3,169,382, which creates a three and one-third million dollar balance. Venezuela sold us $5,753,782 of her products in 1907, and took but $2,500,000 in value of our products, a further balance of $3,250,000.

In 1907 the United States imported goods from the Straits Settlements (Singapore and Penang) to the amount of $17,756,473 in value and sold there $2,068,379, representing a balance in their favor more than $15\frac{7}{8}$ millions. Even the island of Ceylon rolls up a balance of trade against the United States of close to $4,000,000, marketing with us in 1907 $4,176,049 of its products and taking but $333,135 of ours in return. The imports into all of these countries are made up for the most part of three principal groups of commodities, viz: cotton and cotton manufactures; iron and steel with their manufactures and foodstuffs. Cotton goods make up about 30 per cent of the imports of tropical countries and is by far the most important item on the list. The relative proportion of foodstuffs, and the manufactures of iron and steel varies with local conditions, but together they amount to nearly 50 per cent of the total.

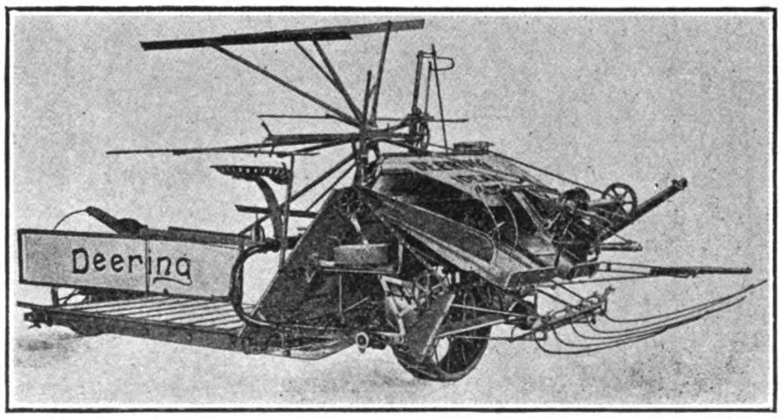
With the many advantages enjoyed by the United States in the production of such articles, it would seem that we should be able to meet successfully in the world's markets Great Britain and Germany, which are the most powerful competitors for that commerce. But even where national sentiment and points of proximity and mutual interest are in our favor, we do not appear able to secure even a reasonable minor share of the trade in lines that we should, according to all ordinary rules, control.

But that we are not predominant in this trade is due to several very large and obvious facts. The American manufacturer has been so completely occupied with the work of supplying the home market, which is vastly more profitable than the foreign, that he has had no time to cultivate the markets of other countries. This nation has been developing with such great rapidity that the energy of its business elements has been taxed to full capacity in providing the requirements of its home field, and only during periods of acute financial or economic depression has thought been given to foreign trade. And it is probable that this condition will not change to any material extent for many years to come. Further than this, our protective system, with its consequent tendency to increase the cost of production through the necessity of a wage scale in keeping with a much higher cost of living, renders it difficult to compete with the cheaper labor nations of Europe, where the standard of living is lower and the home market of proportionately less value to the manufacturer. This has made an export market of relatively greater importance to the European manufacturer, and the competition for such markets, which has developed principally in tropical and sub-tropical countries, has waxed very keen especially between Germany and Great Britain.

Belgium, France, Switzerland, Austria and Italy are able to compete in specialized articles on a satisfactory basis, and the United States produces certain manufactured articles including agricultural implements, sewing machines, typewriters, mining and electrical machinery, etc., in which the mechanical genius of our people has entered to an extent that it places us beyond the reach of European competition for those articles in international markets. But in the commodities that constitute the great bulk of the world's commerce, we are easily distanced by Germany and Great Britain.

There are other reasons than those mentioned why this is so. The European manufacturer has made a careful study of the markets of the world, and has conformed to their requirements in every particular. The tastes of the people; their methods of doing business; details of packing, where climate requires other than the ordinary package or transportation facilities make it necessary; the current fiscal system; language and every other point that might have a bearing or influence on trade is taken into account. On our side the American exporter follows an inflexible rule in matters of credits, packing and shipping, with the result that he does not always hold business when he gets it, even though his goods may be preferred as they often are.

Thus we pay to Brazil each year of coffee, cocoa and rubber from $70,000,000 to $80,000,000 above what Brazil pays us for what we sell there; to Cuba an excess of from $40,000,000 to $50,000,000 for sugar, tobacco and hard woods; to British India for jute, tea and minor articles, from $40,000,000 to $50,000,000; to Java for sugar from $11,000,000 to $20,000,000; to Japan for matting, tea and silk about $30,000,000; to Mexico for tobacco, coffee, rubber, etc., from $10,000,000 to $15,000,000 and Ceylon



REAPER AND BINDER FOR HARVESTING RICE

$4,000,000. These figures represent the actual balance of trade against the United States each year in its commerce with the countries named, which ranges in the aggregate from $229,000,000 to $274,000,000. And all of those countries purchase most of the manufactured goods they consume in the cheaper labor countries of Europe, paying therefore with the money we exchange for their products.

The industrial structure of the United States has been built up under a protective system which involves a considerably higher labor cost than that of Europe. This raises the standard of living, but naturally increases the cost of production. It is not probable that this system, as such, will be changed for many years to come if ever. Under it, competition with cheaper labor countries for foreign trade in manufactured articles, where labor enters as a material factor of production, is naturally difficult, where not impossible. It is obvious, then, that in order to obtain a compensating trade for such tropical products as we import, that have become necessities under our standards of living, the protection of our own tariff laws must be made to secure us from European or other competition in exchanging our manufactures and the foodstuffs peculiar to temperate zones, for those products.

The Philippines can be made to produce a large part of all these imports, and for every dollar's worth of such products that the United States obtains there it will sell in return a dollar's worth of its own.

Look at Porto Rico. In 1907 the United States sold in that island nearly $26,000,000 worth of merchandise. It purchased from Porto Rico in the same year $22,000,000 worth, in the list of which there were no articles that it would not have been obliged to buy from other countries had they not been obtained in Porto Rico and, in that case, without receiving a compensating trade in return.

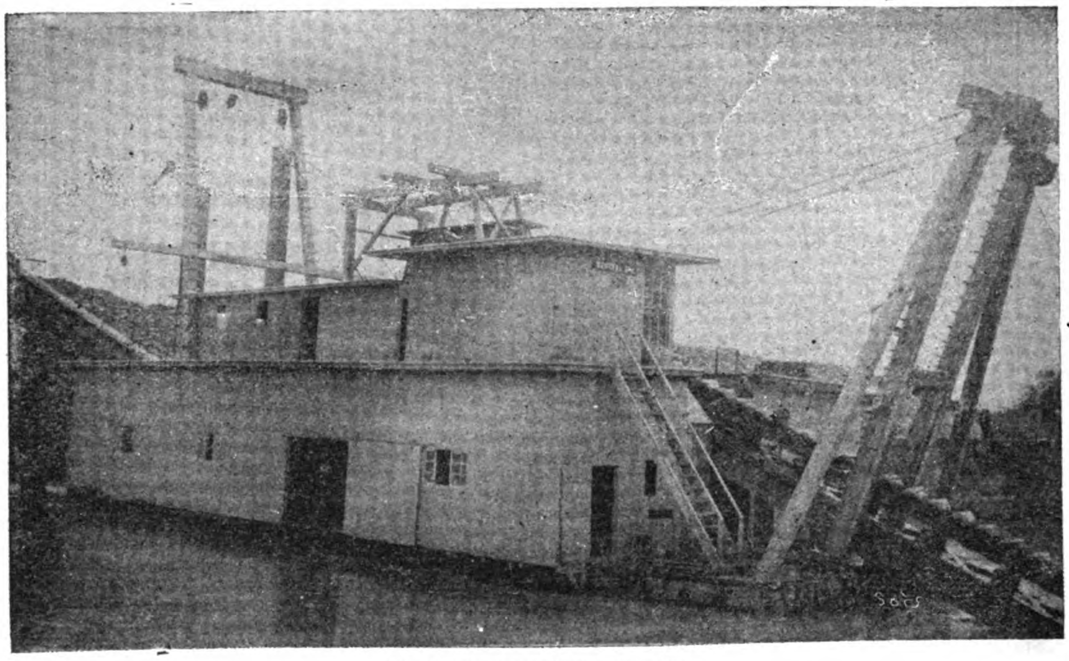
Free trade with the United States, which was naturally followed by the investment in Porto Rico of American capital, with which the Island's industries are being developed, has created a new market for $25,000,000 worth of American products each year, and the limit has by no means been reached.

Porto Rico became a possession of the United States in the same year as the Philippines. Free trade between the island and the homeland went into effect July 1, 1901. For the year immediately preceding, that is, the year ending June 30, 1901, the external commerce of the island was $17,950,197. This was about the normal trade in Spanish times. After six years of free trade with the United States, it had increased from less than eighteen millions to $56,253,472. And this growth has been of as much benefit to the United States as to Porto Rico.

Porto Rico has an area of 3,435 square miles and a population of 1,000,000. The Philippines have a population of 8,000,000 and an area of between 115,000 and 120,000 square miles—thirty four times the area and eight times the population of Porto Rico. When it is considered that the Philippines have four and one-half times the per capita area of Porto Rico; a much greater diversity of natural products in one of which, Manila hemp, they hold the world's monopoly; boundless forests containing many of the finest hard woods known, and a great wealth in coal, iron, copper and gold, it requires no stretch of the imagination to picture them producing, with equal advantages, at least, as much per capita as Porto Rico. When they do this, as they will within a reasonable period following absolute free trade legislation, their foreign or external commerce, based on the present development in Porto Rico, will amount to $440,000,000 annually, and will mean the reaction of a new export trade for the United States amounting to upward of $200,000,000 annually.

This will so enhance the prestige of our country in the Pacific as to make its position impregnable. It will make it absolute master of the world's greatest ocean and the controlling factor in the trade and destiny of China.

The commercial marts of China are but a few days' travel from Manila. The nearest is two and the others from three to five days' travel by sea. China is developing rapidly; the building of railroads is giving a great impetus to the commerce of the empire and a spirit of progress prevails there that is bringing that wonderful country into more intimate relation both commercially and politically with the outside world.

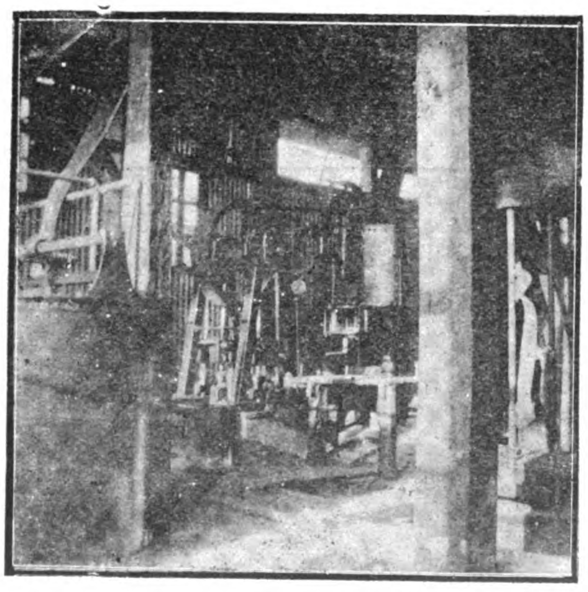


GOLD DREDGE IN OPERATION

Under present conditions, it takes from five to six months from the time mail orders are sent from China to the United States, Great Britain or Europe before the goods are received, and from four to five months for goods to arrive that are ordered by cable.

Nearly all Chinese imports are purchased through brokers, and foreign houses could not carry permanent stocks there, for the reason that they have no trade assured that would warrant it. United States houses could, however, and doubtless will carry permanent stocks in Manila, when the trade of the Philippines develops volume commensurate with their producing capacity, for our manufactures would be in control of that trade, it would be assured them. From such stocks the trade of China could be supplied, and it would not be long before Chinese merchants would appreciate the advantage of buying all they could in Manila even at a slightly increased cost, for the necessity of buying heavily and carrying abnormal stocks would thereby be eliminated. Requirements could be more accurately anticipated and a tremendous saving effected by the great reduction that would result in the amount of capital necessary to conduct their business.

This operation would be gradual, as are all radical changes in the customs of the Chinese, but in my opinion the belief is fully warranted that development, of the resources and control of the trade of the Philippines will insure our ascendency in an ultimate control of the trade of China. The annual imports into China are now about $350,000,000. It should not require very many years for them to reach an annual total of a billion dollars.



OIL REFINING APPARATUS USED IN THE PHILIPPINES

THE PRIESTMAN DREDGER, EXCAVATOR AND ELEVATOR

The Priestman Grab-Dredger, Excavator and Elevator was introduced about 30 years ago, and is now well-known. It consists of a specially designed crane and "Grab," the latter being usually what is known as the double chain type.

The first dredger put to work is shown in the illustration No. 1.

It was supplied to the order of Mr. R. A. Marillier, M.I.C.E., the Engineer-in-Chief to the Hull Dock Company, who wrote as follows respecting the working of the same:

"I have pleasure in informing you that the Patent Bucket Crane which you supplied to us, and which we have had at work nearly four months, employed in dredging mud from our

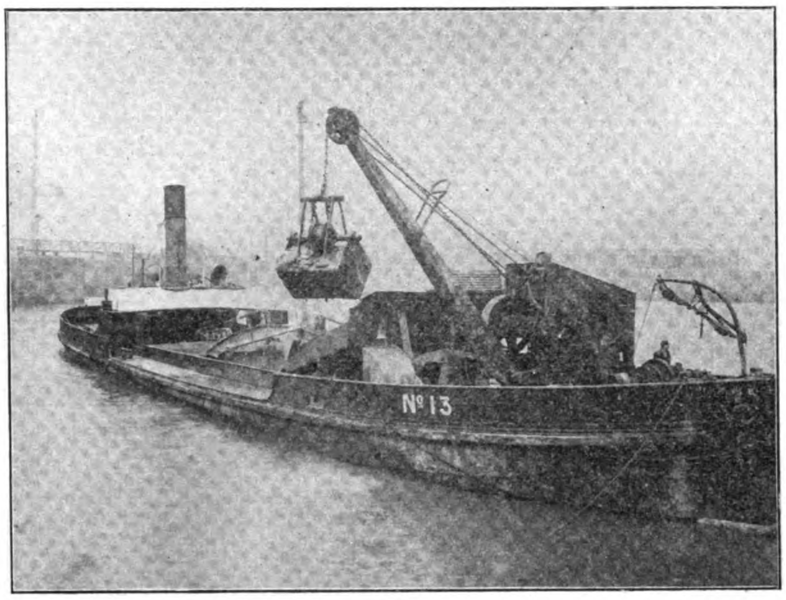


PLATE NO. 2

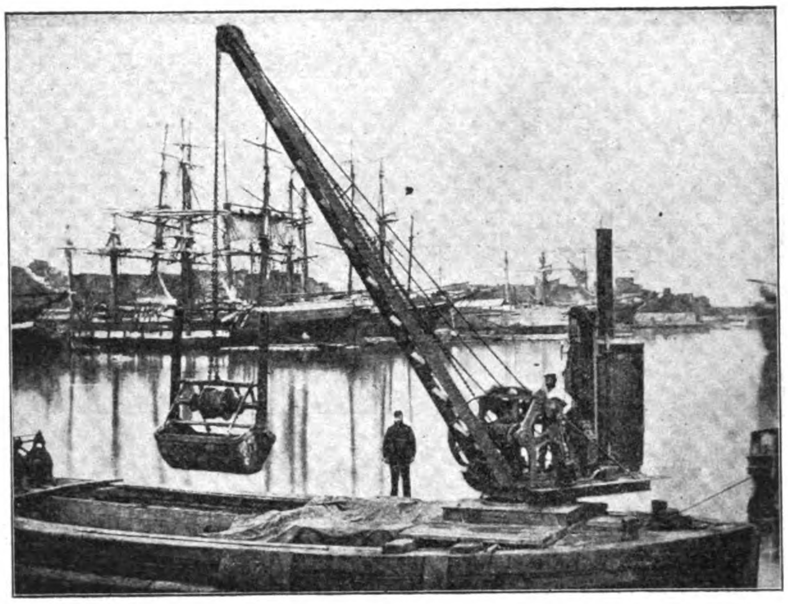
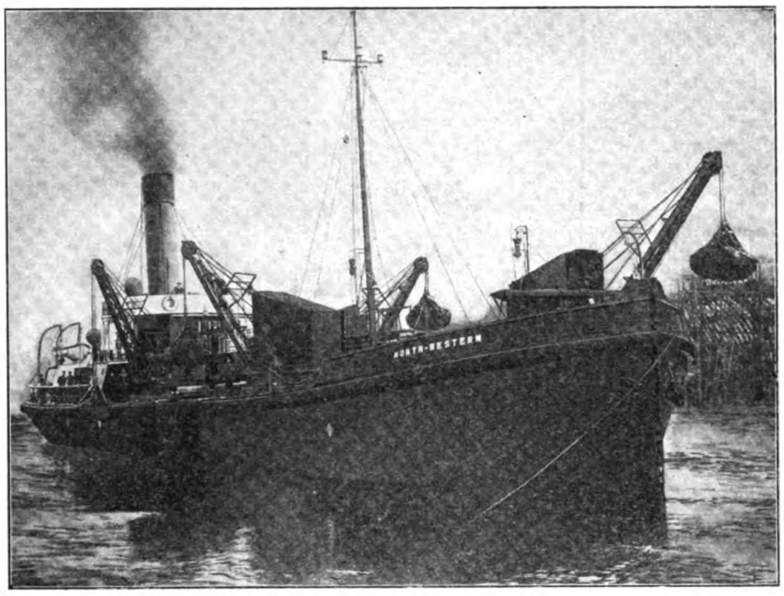


PLATE NO. 1



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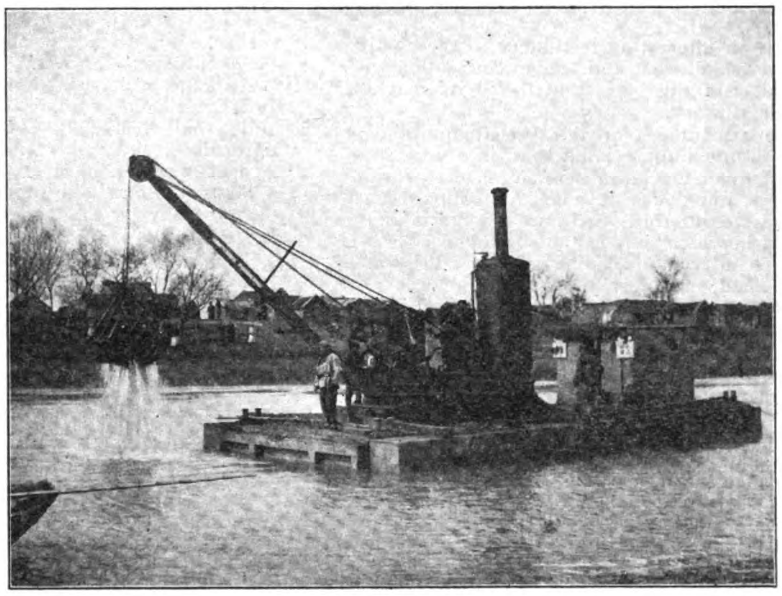

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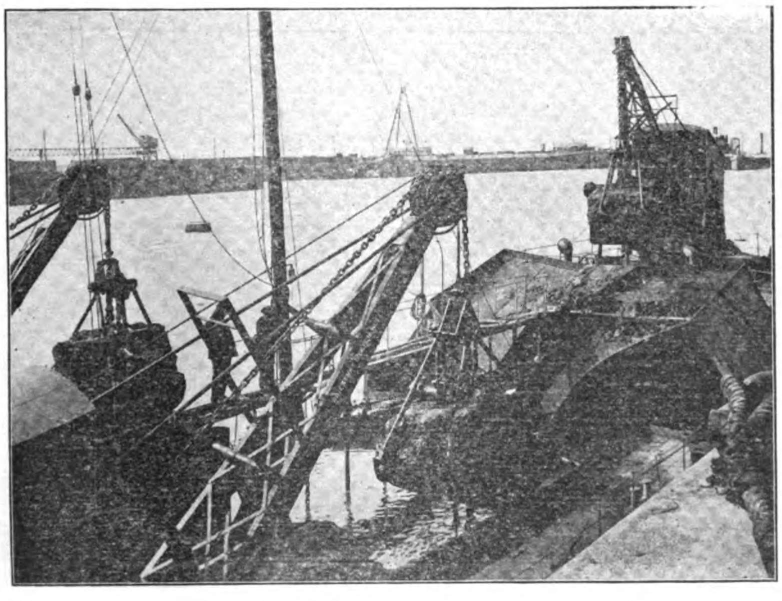
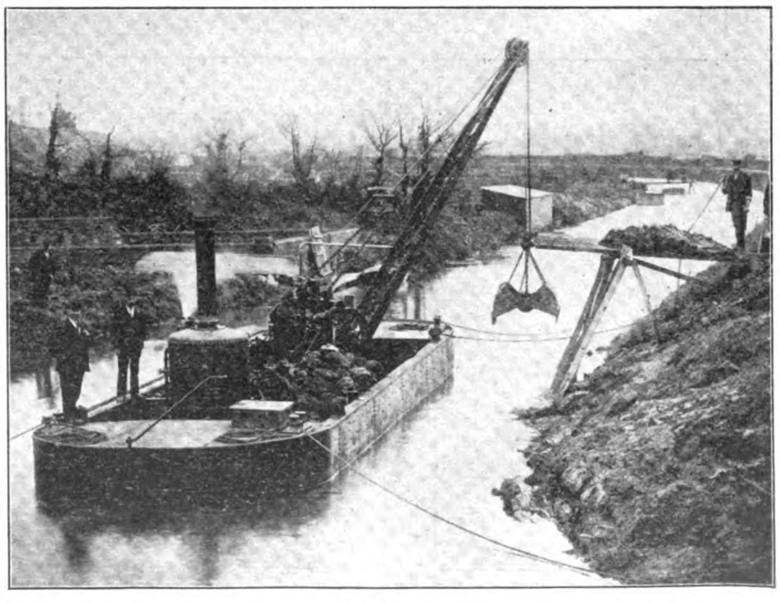


PLATE NO. 6



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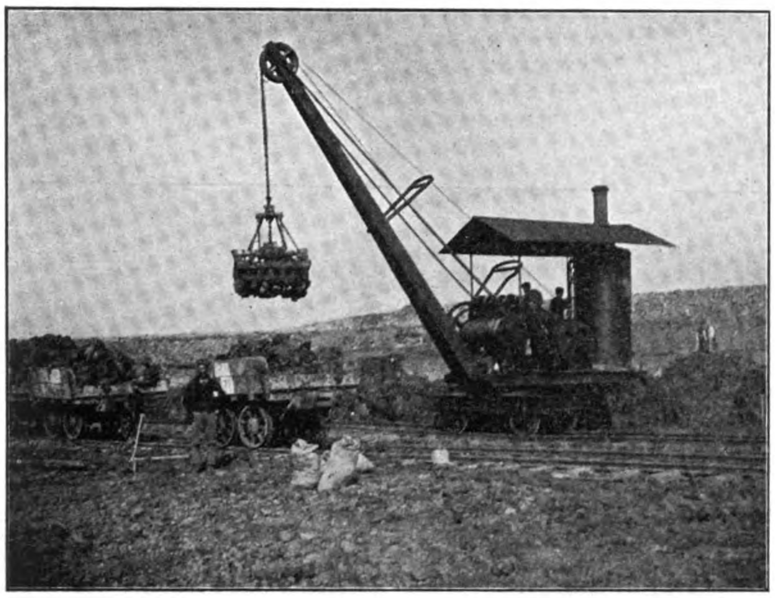


PLATE NO. 7

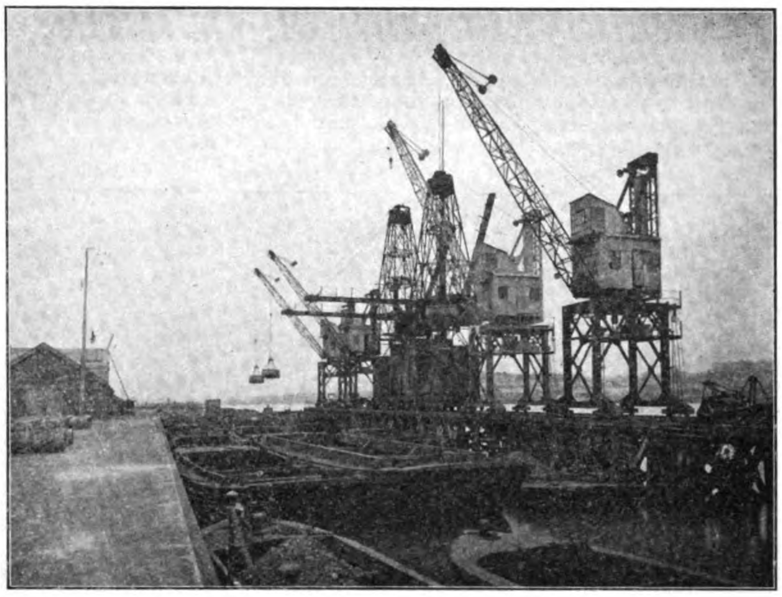


PLATE NO. 9

Docks, continues to work in a satisfactory manner. During six days, whilst at work in about 19 feet of water, it raised $52\frac{1}{2}$ tons per hour on an average; and a maximum during one day of nearly $68\frac{1}{2}$ tons per hour. The cost per ton of mud raised amounted to 1.63d, which includes all labor, coals and stores, but is exclusive of interest on cost of crane and lighters."

It is an interesting testimony to the comparatively small wear and tear in connection with a dredger of this type, that the above machine is still at work.

The advantages of the Priestman Dredger were so much appreciated that, in a very short time, similar machines were supplied to various harbors and docks at home and abroad until at the present time, there are few parts of the World in which they cannot be found.

It recently happened that Messrs. Priestman Bros. had, amongst many others, orders in hand at the same time for a dredger for a Harbor in Iceland, and for a gold dredger for Terra del Fuego.

The Priestman System has been supplied to 24 different Governments, the British Government alone having taken thirty-four.

The Liverpool Docks Board, whose dredging operations are on a very large scale, adopted the Priestman Grab-Dredger. After this had been put to work, a further order was given for a similar Dredger for removing the Pluckington Bank adjoining the landing stage, where passengers embark for America. Later, an order was given for four Priestman Grab Dredgers to be fixed on a Steam Hopper Barge, specially built for the purpose. They raise, on an average, 400,000 tons per annum, at a cost of $1\frac{1}{2}$d to $1\frac{3}{4}$ per ton, which includes dredging and depositing at a distance of ten miles.

After this, four grabs of the Priestman type were supplied for working on a hydraulic dredger, the capacities of which are 100 cubic feet each. After these different Dredgers had been in use for some time, a grab-dredger of another type was adopted, but after comparing the working of this with the Priestman System, the same was discarded, and the dredger shown by illustration No. 2 was ordered in its place.

A further order has since been given for four Priestman Dredgers, and during a period of three and a half years, these dredgers, which make upwards of sixty operations each per hour in 40 feet of water, have worked twenty-one tides a fortnight, and, except during the periodical examination of the boilers, etc., have never missed a tide.

The barge upon which these Dredgers work, has a hopper capacity of 1100 tons of mud.

At the present time, Messrs. Priestman Bros. have still another order in hand for four large grab dredgers, on behalf of the Liverpool Docks Board.

The London and North Western Railway Co., after taking three Priestman Grab Dredgers at different times, have recently placed an order for a quadruple grab-dredger, as shown by the illustration No. 3.

A large number of grab-dredgers of the Priestman type have been supplied to China and Japan, one of the former being shown by the illustration No. 4.

Important improvements have been introduced from time to time. The dredger is now fitted with spur gear for the lifting barrel in place of flat friction gearing, and a patent

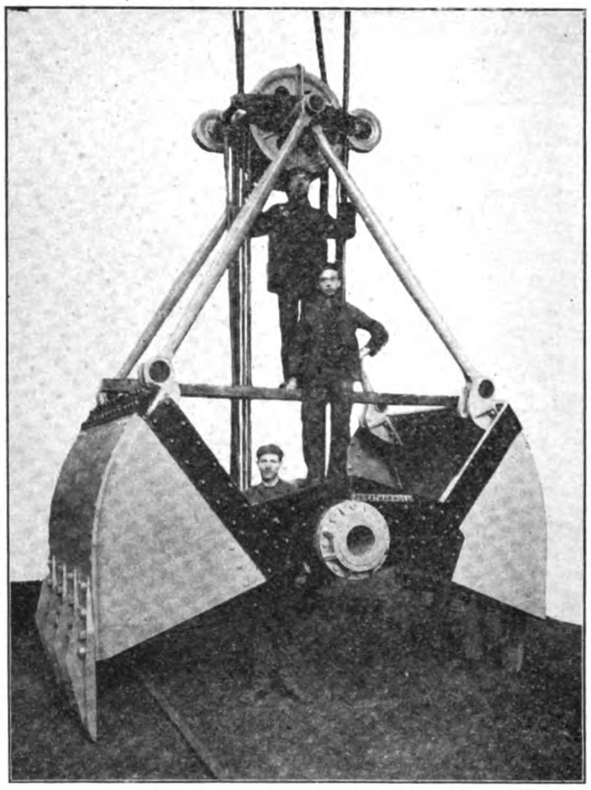


PLATE NO. 11

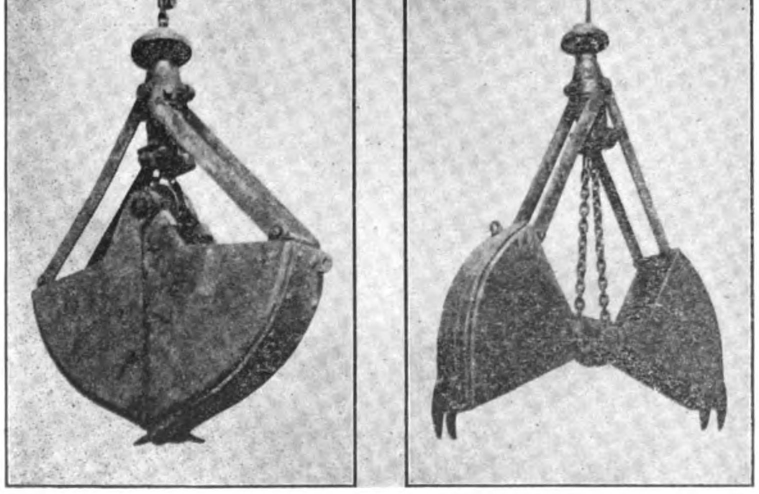


PLATE NO. 8

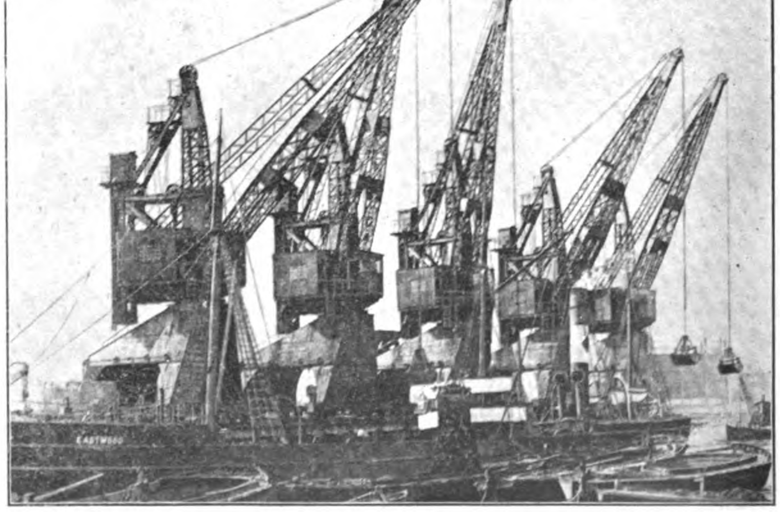


PLATE NO. 10

automatic barrel for operating the opening rope; it is well proportioned and very strongly built to resist the strains necessarily met with in working grabs, very quick in action, and one of the main features in that, notwithstanding the motions connected with the lifting, opening, lowering and closing of the grab, the driver has two levers only to attend to.

The Priestman Dredger can be kept in efficient working order at a very small cost in repairs. By taking a duplicate grab, delay arising from wear and tear may be almost if not entirely avoided.

It can be worked at any depth, and having no fixed working parts below water line, it can be employed in very shallow water.

It occupies less room than the ladder dredger, and it can be used in dock corners, along quay sides, and amongst shipping, where it would be difficult to work the other types of Dredgers.

The Marine Superintendent for the London & Northwestern Railway Co. writes with reference to the Priestman Dredger as under:—

"The grab-dredger can work in comparatively rough weather, as there are no fixed parts below water, but in the case of the bucket Dredger, seeing that the ladder must be lowered under water, this would not be practicable."

Another great advantage in connection with the Priestman System is that the spoil raised can be used in the formation of the banks, as shown by the illustration No. 5.

The following is an extract from the New South Wales Government report on dredging:

"The first cost and annual expense of working the Ladder dredgers is so considerable that many of the rivers would have remained unimproved had not the grab-dredger been built. The facility offered for disposing of the silt by utilizing it in the formation of the banks, renders them specially suitable for work of this kind."

Other dredgers may be capable of doing one class of work only, whilst the Priestman, besides being suitable for dredging ordinary deposit, with grabs of suitable design, can be used for excavating stiff clay, and lifting rock, frequently raising pieces up to several tons in weight.

The Engineer for the New South Wales Government reports:—

"Used in connection with rock blasting, these machines have proved invaluable for lifting broken rocks, portions of which often weigh 3 to 4 tons."

The Engineer to a British Harbor Board writes as under:—

"The boulder lifting grab is a perfect contrivance, as it enables the driver's services to be dispensed with."

Besides being adopted for large dredging operations, the Priestman System is used to advantage in lifting broken stones, etc., raising embedded timber, and, amongst other purposes, it is used for excavating docks and canals, trench cutting, lifting ballast, iron ore, discharging coal and other bulk cargo. A great variety of merchandise lost overboard has been recovered, such as steel rails, wheel barrows, a missing grab, buried treasure, etc. With the grab removed, it is used for driving and pulling out piles, and as a crane for ordinary lifting purposes, has special advantages.

The Priestman Dredger with suitable grabs has been used for removing material from Harbors where other systems have failed. This has been proved by the triple dredger ordered by the Midland Railway Co., as shown by illustration No. 6.

The Priestman System is also extensively used by Contractors and others for excavating purposes.

Orders have been received from the following amongst many other large dock and Railway Contractors:—

Messrs. S. Pearson & Son, Ltd., Messrs. Sir John Jackson Ltd., Messrs. John Aird & Sons, Messrs. Sir Wm. Arrol & Co. Ltd., Messrs. Tophan, Jones & Railton, Messrs. R. McAlpine & Sons, who have taken 10 Grab Excavators, most of which are used for sinking monoliths, and the late Mr. Thos. A. Walker, who took 29 Priestman Excavators at different times, a number of which were used in the construction of the Manchester Ship Canal

Messrs. S. Pearson & Son, Ltd., referred to above, are the Contractors for the new Docks at Hull, and have taken sixteen Priestman Grab-Excavators, at different times, one of which is shown in Illustration No. 7.

An improvement in the Priestman Excavator has lately been introduced consisting of a high purchase arrangement of sheaves fitted to the grab, greatly increasing the penetrating power by means of which the grab will enter and break up ground which a hand pick would barely enter.

Grabs have been successfully designed for various kinds of special work, one of which is shown on Illustration No. 8.

The Contractor writes with regard to this Grab as follows:—

"I have pleasure in stating that the grab I bought from you for removing deposit between monoliths has answered admirably. It did in two hours work which would have taken twelve men a fortnight, and paid for itself in a very short time."

With regard to the Priestman Grab Elevator, which is used for discharging coal, coke, grain, iron ore, phosphates, minerals, and other bulk cargo, in proof of the satisfaction which these have given, and are giving, sixteen elevating grabs for coal have been supplied to one firm alone within the last eighteen months.

The two illustrations Nos. 9 and 10 show installations of Priestman Coal Grabs in operation at important Coaling Stations.

Grabs of different kinds are manufactured by Messrs. Priestman, having capacities of from 1 to 150 cubic feet, and in one hundred and fifty different types and sizes and illustration No. 11 represents a grab for working iron ore, which is probably one of the largest and most powerful ever made.

This grab lifts, in actual working, upwards of seven tons of iron ore at a time.

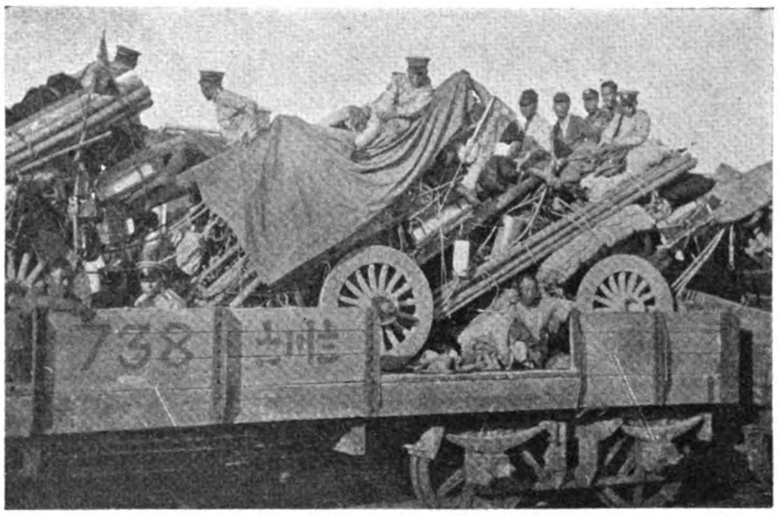
HUNTINGTON MILL FOR THE PARACALE GOLD DREDGING CO.

The Paracale Gold Dredging Co., Ltd., has ordered a five foot Huntington Mill from Messrs. Allis-Chalmers Co., Milwaukee, through Frank L. Strong, the Allis-Chalmers' representative. The mill is to be utilized in winning gold on the company's dredging property in Paracale.

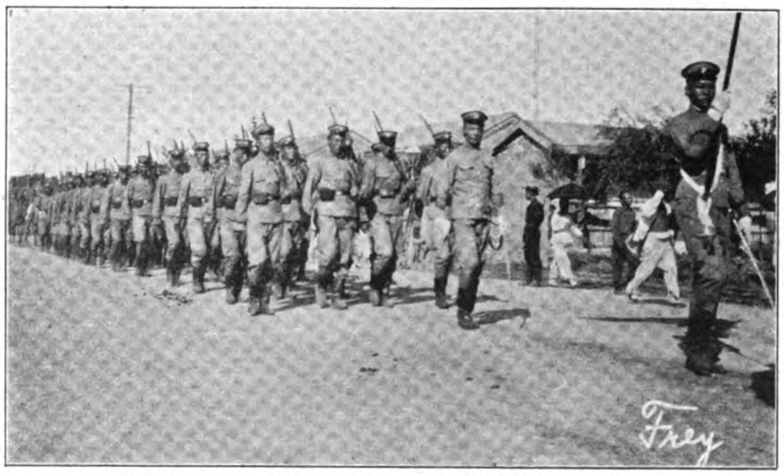
SEPTEMBER SHIPMENTS OF PHILIPPINE CIGARS TO THE UNITED STATES

A total of 554 cases or approximately 5,500,000 cigars were shipped to the United States during the month of September making a total under free trade conditions of approximately 7,000,000 to September 30. The following is a list of the exporters with the amount in cases for September:

	Cases.
Castle Bros.-Wolf & Sons	259
W. E. Olsen & Co	113
Baer Senior & Co., Successors	51
Germann & Co	43
Philippine Co., Ltd	30
W. H. Anderson & Co	17
La Germinal	16
La Insular	9
Meerkamp & Co	8
La Minerva	4
Sprungli & Co	3
Kuenzle & Streiff	1
Total	554



COMMISSARIAT WAGON ON TRAIN



DETACHMENT OF MODERN MILITARY POLICE, TIENTSIN

FAR EASTERN COMPANY REPORTS

HONGKONG COTTON SPINNING, WEAVING AND DYEING CO., LTD.—The following is the report submitted by the General Managers at the recent meeting for the year ended July 31st:

"The balance at credit of Profit and Loss account is $29,506.51 which it is proposed to appropriate as follows:—To write off Furniture account, $3,209.49; to carry forward to credit of next year's account, $26,297.02—$29,506.51.

GOLDEN HOPE RUBBER ESTATE, LTD.—An interim dividend of 8% for the term has been declared.

BUKIT RAJAH RUBBER CO., LTD.—This company has also declared an interim dividend of 15%.

NORTH CHINA INSURANCE COMPANY, LTD.—A final dividend of 7.5% for the year 1908 on the paid up capital and a bonus of 15% to contributors was recommended by the directors at the yearly meeting.

GREEN ISLAND CEMENT CO., LTD.—This company has declared an interim dividend of 35 cents a share.

DAIRY FARM COMPANY, LTD.—The profit for the year ended July 31st, after writing off $18,510.11 for depreciation, bad and doubtful debts and providing for directors' and other fees, amounts to $61,850.01, from which it is proposed to pay a dividend of one dollar and twenty cents per share, absorbing $48,000; to transfer to reserve fund $10,000; to fire and typhoon insurance fund $2,000; and to carry forward $1,850.01.

CHARBONNAGE DU TONKIN.—The dividend of f. 37.50 a share was payable last month.

MERCANTILE BANK OF INDIA, LTD.—This institution has declared an interim dividend of 6% per annum free of income tax for the half year ended June 30th.

CONSOLIDATED MALAY RUBBER ESTATES.—An interim dividend of 20% for the half year ended June 30th.

YOKOHAMA SPECIE BANK, LIMITED.—The following is the report submitted by the directors of this institution at the semi-annual meeting held September 9th for the term ended June 30th, 1909:

The gross profits of the bank for the past half-year, including -Y- 1,141,676.90 brought forward from last account, amount to -Y- 11,989,849.29, of which -Y- 8,994,008.01 have been deducted for interests, taxes, current expenses, rebate on bills current, bad and doubtful debts, bonus for officers and clerks, etc., leaving a balance of -Y-2,995,841.28 for appropriation.

The directors now propose that -Y- 400,000.00 be added to the reserve fund, and recommend a dividend at the rate of twelve per cent. per annum, which will absorb -Y- 1,440,000.00.

The balance -Y- 1,155,841.28, will be carried forward to the credit of next account.

BARON KOREKIYO TAKAHASHI,
Chairman.

Head Office, Yokohama.
September 10, 1909.

BALANCE SHEET.

Liabilities.	*Yen*
Capital (paid up)	24,000,000.00
Reserve funds	15,500,000.00
Reserve for Doubtful Debts	468,795.79
Notes in circulation	4,744,993.29
Deposits (current, fixed, etc)	119,409,870.95
Bills payable, bills re-discounted, acceptances, and other sums due by the Bank	75,401,779.69
Dividends unclaimed	4,998.02
Amount brought forward from last account	1,141,676.90
Net profit for the past half-year	1,854,164.38
Yen	242,526,279.02

Assets.	*Yen.*	*Yen.*
Cash account:—		
In hand	15,056,283.82	
At bankers	17,784,561.93	
		32,840,845.75
Investments in Public Securities		20,555,994.66
Bills discounted, loans, advances etc		64,874,187.40
Bills receivable and other sums due to the Bank		118,715,009.41
Bullion and Foreign Money		2,991,204.11
Bank's premises, properties, furniture, etc		2,549,037.69
	Yen	242,526,279.02

PROFIT AND LOSS ACCOUNT.

To interests, taxes, current expenses, rebate on bills current, bad and doubtful debts, bonus for officers and clerks, etc.	8,994,008.01
To reserve fund	400,000.00
To dividend—(Yen 6% per share for 240,000.00 shares)	1,440,000.00
To balance carried forward to next account	1,115,841.28
Yen	11,989,849.29
By balance brought forward December 31, 1908	1,141.67
By amount of gross profits for the half-year ending June 30, 1909	10,848,172.29
Yen	11,989,849.29

The Chairman, Baron K. Takahashi, addressing the shareholders, said:—

Gentlemen:—In opening the fifty-ninth semi-annual general meeting of our shareholders, and presenting to you a report covering the first half of the current year and asking for your adoption of the same, as well as inviting your consent to the appropriation of profits, I propose to refer briefly to the economic conditions of the country generally, as well as to the general state of our banking operations.

Our economic conditions, during the first half of the current year, appeared at first glance to be in a very inactive state, differing little from the conditions ruling last year; but after a closer survey of the situation, it is noticeable that matters appear to have altered in a marked degree. The large stocks of merchandise seem to have nearly all been disposed of during the period between the latter part of last year and the spring of this year, while the bulk of the various enterprises, which suffered from the effect of the depression during the year before last, have during the period under review steadily recovered, enabling things to be placed once more on a sound and firm footing. However, having once experienced adverse conditions, the market is still exercising caution, although it is progressing towards a fair recovery. Considering the way in which prosperity is returning in Europe and the United States of America, we can hardly hope for any immediate activity in Japan; consequently we have not yet experienced any marked demand for money in various grades of enterprise.

In addition to the above state of things the successful floating of loans abroad for various municipalities and companies, coupled with the sale of the various Government Stocks abroad having facilitated the influx of capital from foreign countries, our internal money market has become more and more slack, and the interest on money has gradually declined; and although banks in all parts of the country have gone so far as to lower the rate of interest, yet they continually found themselves in difficulty to find proper outlets for their money.

Now looking at the state of our foreign trade during the first half-year, we find that the exports and imports amount roughly to -Y-187-000,000 and -Y-214 510,000 respectively, making a total of -Y-401,510,000. These figures, when compared with those for the corresponding period of the previous year, show a falling off amounting to -Y-38,480,000 in imports, but as there is an increase of -Y-13,980,000 in exports the net result is a decrease of about -Y-24,500,000, including both exports and imports. Of these figures the decrease in imports chiefly relate to iron-material and machinery, and this we must attribute to the fact that the business men of all classes are maintaining a cautious and guarded policy; while the increase in exports is due, on the one hand, to an improvement in some degree of our trade with China, caused by the comparative recovery of the silver, and, on the other, to the increased export of raw silk, tea and other articles, consequent upon the improved general economic conditions in Europe and the United States. In short, although there is a decrease in the foreign trade generally, when compared with the corresponding period at the last year, the general tendency of the trade may be said to be favorable to our country, and we see nothing special to cause any anxiety.

Although, as already mentioned, the internal money market has been very dull, and while our external commerce has exhibited a falling off, yet the actual condition of our banking operations has differed from the prevailing conditions of things in general, and we have seen a general briskness, due to such special circumstances as the very large sales of Government Stocks abroad in addition to a marked increase in the export of silk. During the first half of this year the amount of exchange sold and bought in Japan on foreign countries totalled roughly -Y-30,600,000 and -Y-91,570,000 respectively. If we compare these figures with those of the corresponding period of the preceding year we find the increase amounting to -Y-5,490,000 in the case exchange sold and -Y-9,850,000 in the case of exchange bought; while the exchange bought and sold in foreign countries on Japan amounted to -Y-79,610,000 and -Y-29,390,000 respectively. A comparison of these figures with those of the corresponding period of last year shows that although there was a decrease of -Y-2 410 000 in the exchange bought, yet as there was an increase in that sold amounting to -Y-4,190,000 the net result was an actual increase of -Y-17,120,000 in the totals of all the exchange operations in Japan on foreign countries and *vice versa* by all the offices of this Bank.

We have, however, to express great regret that as an outcome of the economic disturbances of recent years, the collection of some of the bills discounted and foreign exchange in Kobe, Osaka and Ryojun, could not be effected as it really should have been, and the amounts had to be adjusted in the present financial year by either writing off as a loss or by providing funds for bad or doubtful debts. In spite of these unfortunate transactions, our business has been active and extensive. Both the Head as well as Branch Offices and Agencies were all able to make fair profits, with the result that they differ little from that of the preceding period. These profits amount to -Y-1,854,164.38, the appropriation of which we have drafted and submit for your consideration and adoption.

Before concluding these remarks, I have one other matter to refer to. Our Chefoo Agency, which was opened in June of 1905 for the purpose chiefly of adjusting the withdrawal of the War Notes, will be closed on September 30, as there being no further business of this kind to transact, the maintenance of the said Agency has become unnecessary.

CHARTERED BANK OF INDIA, AUSTRALIA, AND CHINA.—The directors have declared a dividend of 13% per annum, free of income tax for the half year ended June 30th, 1909.

TANJONG PAGAR DOCK BOARD.—The receipts for the half year ended June 30 amounted to $2,435,423, an increase of $80,000. The average yearly profit of the Board has been about $1,500-000.

LINGGI PLANTATIONS COMPANY, LTD.—An interim dividend of 40% has been declared by this company.

THE KLANANG PRODUCE COMPANY, LTD.—An interim dividend of 10% has been declared.

THE CICELY RUBBER ESTATES CO., LTD.—An interim on ordinary of 25% and on preferred 26.25%.

MINDANAO HERALD PUBLISHING COMPANY.—This company has declared a dividend of 15 per cent. per annum.

FAR EASTERN RAILWAY NEWS

KIANGSU-CHEKIANG RAILWAY.—The Yuch'uanpu has memorialized the Throne to have the management of this line placed under its control.

CHINESE TIMBER FOR RAILWAY SLEEPERS.—The railway authorities have been making investigation of the adaptability of timber grown in Yunnan, Kiangsu, Hunan, Fukien, Kueichou, Hopeh and Honan with the result that the different railway companies have been instructed to purchase Chinese timber for railway construction wherever possible instead of the imported article.

KOWLOON-CANTON RAILWAY.—Mr. S. S. Lindsay, Deputy Chief Engineer of the South India Railway, will assume the duties of Chief Engineer of this line and will devote much of his time to the organization of the traffic.

CHINESE EASTERN RAILWAY EXTENSION.—Russia has completed the extension of the line to Tsitsihar, a distance of five miles. It was opened on September 27th.

SZECHUAN-TIBET RAILWAY.—The construction of this projected line has been the subject of much discussion in Peking. There has been some difference of opinion as to how the funds for construction should be realized. H. E. Hsu Shih Chang favored the raising of the money by a foreign loan, and Prince Tsai Tse expressed strong disapproval of such a course with the result that for the moment the matter of financing the project has been postponed.

KANSU-TURKESTAN RAILWAYS.—The Prince Regent is greatly interested in the construction of railways from Kansu province to Chinese Turkestan and has directed the Ministry of Finance to make a report on the best means to finance these projects.

ANTUNG-MUKDEN RAILWAY CONSTRUCTION.—The question of duty on materials for the construction of this line is the subject of disagreement between the Chinese and Japanese authorities. The Japanese want the suspension of duties as provided in the Chinese Eastern Agreement with Russia. The Chinese demand that duties be imposed. For the present the customs authorities are keeping a record of the materials brought in and it is expected that the matter will soon be amicably settled.

JAPANESE RAILWAYS.—The Government has paid the 17 railways taken over the sum of yen 379,389,550 in the form of bonds leaving a balance of yen 96,929,250 which is expected paid by the end of the year.

SOUTH MANCHURIA ACTIVITY.—The South Manchuria Railway expects to complete the doubling of the line as far as Sukiatung by the last of the present month. This will mean the completion of a double track on this system for a distance of 230 miles. There is also prospect that the company will build right into the city of Newchwang. This means about three miles of additional road.

TOKYO-NAGAOKA RAILWAY.—A charter has been granted the promoters of this project which will connect the capital by rail with Nagaoka, on the west coast in the province of Echigo. The proposed line when completed will be 146 miles in length and cost in the vicinity of yen 6,000,000. The prospectus of the company has not yet been issued.

RAILWAY SUPPLIES.—The Japanese press reports the formation of a vehicle trust, in which the Railway Car Manufacturing Company, The Kawasaki Dock Company and the Japan Vehicle Company are interested. Marquis Inouye is said to have assisted the promoters. The first order is for the repair of 200 locomotives for the South Manchuria Railway Company.

KOREAN RAILWAY CONSTRUCTION.—The work of construction on the Pyongyang-Chinnampho Railway which is to connect Pyongyang with a point at the mouth of the Tadong River, a distance of 38 miles, is being pushed with vigor. The work is divided into five sections, all under construction simultaneously. The harbor of Kyomi-pho is about half way between the two places. It is understood that the authorities have decided to construct the Seoul-Gensan Railway in preference to the other projected routes under consideration for the year. It is considered that this line is of the greatest importance and as it is not possible to carry out the entire program of railway building in Korea at this time, it was decided to concentrate all efforts in pushing this line to completion.

CHINESE EASTERN REDEMPTION.—The Peking Government has instructed the Wai-Wu-Pu to open negotiations with the Russian Government with a view to redeeming the Chinese Eastern Railway.

JAPAN RAILWAY REVENUES.—The Railway Bureau estimates the revenue from the system for 1910 at yen 90,000,000 and the expenditure at yen 80,000,000. The extensions and improvements are estimated to amount to yen 40,000,000.

BAIKAL CIRCULAR RAILWAY.—The Russian Government has decided to double track the line as surveyed round Lake Baikal.

SUPPLIES FOR THE MUKDEN-ANTUNG CONSTRUCTION.—The Tiehling Flour Mill has secured the contract to supply flour for the laborers on this work and as it is estimated that 50,000 coolies will be employed, the contract is one of some magnitude.

KIRIN-HOIRYONG RAILWAY.—This proposed line, to which the recent China-Japan agreement refers, will run from Kirin via Tungchwacheng and Hwangtung-hostz to Chientao and from the last named point to Hoiryong. The total distance is 225 miles. It is said that definite arrangements were concluded at Peking for the immediate construction of this line.

JAPANESE SLEEPERS FOR THE TIENTSIN-PUKOW.—The China Import and Export Company concluded its contract for the delivery of 50,000 ties of the best oak to this company last month.

ROYAL STATE RAILWAYS OF SIAM.—The report of the Director General for the year 127 shows 844.8 kilometers of line in operation, of which 67.7 kilometers were added on the Northern Section, Pitsanuloke-Utaradit, when the line was opened to Ban Dara, November 11th, 1908. Of this length 693.4 is of 1.435 meter gauge and 151.4 of 1 meter gauge. The gross receipts were 4,188,714 ticals and the net gain 2,249,566 ticals. The cost of operation and maintenance in all departments was 39.58% of the gross receipts. The increase in mileage was 31.17% and the increase in expense 27.14%. The receipts for passenger traffic amounted to 2,672,064 ticals and from freight carrying and other sources 1,516,650. The expenditure for new works amounted to 1,125,484 ticals. The following tenders were received for the supply of portable railway track and cars for the Southern Railway:

G. Kluzer, Bangkok, accepted, delivery at Trang and Singora	£750.0.0
Hamburg-Siam Gesellschaft, Bangkok	818.0.0
Delivery at Singapore and Penang, Bangkok Dock Co., Ltd	685.0.0
Delivery at Trang and Singora, Riley Hargreaves, Singapore	620.0.0
Delivery at Trang and Singora, Howarth Erskine, Ltd., Bangkok, Delivery at Singora	615.0.0
Delivery at Penang Singora	584.0.0
Behn Meyer and Co., Bangkok, Delivery at Trang and Singora	596.6.8
John M. Dunlop, Bangkok, Delivery at Trang and Singora	565.0.0

NANKING CITY RAILWAY EXTENSION.—The extension of this line, which connects Nanking with the port of Hsai Kuan, is to be extended to Wuhu, a distance of 60 miles, and will tap one of the richest rice sections in China.

RUSSIAN RAILWAY GRAIN ELEVATOR.—The Siberian Railway is constructing a large elevator at Tchalabinsk having a capacity of over 600,000 tons.

OFFICIAL TEXT OF RECENT AGREEMENTS BETWEEN CHINA AND JAPAN.—Respecting Korea and Manchuria and Railway Disputes.

Chientao.—The Imperial Government of Japan and the Imperial Government of China, desiring to secure for Chinese and Korean inhabitants in the frontier the blessings of permanent peace and tranquility, and considering it essential in the attainment of such desire that the two Governments should, in view of their relations of cordial friendship and good neighbourliness, recognize the River Tumen as forming the boundary between China and Korea, and should adjust all matters relating thereto in a spirit of mutual accommodation, have agreed upon the following stipulations:—

Article I.—The Governments of Japan and China declare that the River Tumen is recognized as forming the boundary between China and Korea, and that in the region of the source of that river, the boundary line shall start from the Boundary Monument and thence follow the course of the Stream Shihyishwei.

Article II.—The Government of China shall, as soon as possible after the signing of the present Agreement, open the following places to the residence and trade of foreigners and the Government of Japan may there establish Consulates or Branch offices of Consulates. The date of the opening of such places shall be separately determined:—Lungchingtsun, Chutzechie, Toutaokou and Paitsaokou.

Article III.—The Government of China recognizes the residence of Korean subjects, as heretofore, on agricultural lands lying north of the River Tumen. The limits of the district for such residence are shown in an annexed map.

Article IV.—The Korean subjects residing on agricultural land within the mixed residence district to the north of the River Tumen shall submit to the laws of China, and shall be amenable to the jurisdiction of the Chinese local officials. Such Korean subjects shall be accorded by the Chinese authorities equal treatment with Chinese subjects, and similarly, in the matter of taxation and all other administrative measures, they shall be placed on equal footing with Chinese subjects. All cases, whether civil or criminal, relating to such Korean subjects shall be heard and decided by the Chinese authorities in accordance with the laws of China, and in a just and equitable manner. A Japanese Consular officer, or an official duly authorized by him, shall be allowed freely to attend the Court, and in the hearing of important cases concerning the lives of persons, prior notice is to be given to the Japanese Consular officers. Whenever the Japanese Consular officers find that a decision has been given in disregard of law, they shall have the right to apply to the Chinese authorities for a trial to be conducted by officials specially selected, in order to assure justice of the decision.

Article V.—The Government of China engages that land and buildings owned by Korean subjects in the mixed residence district to the north of the River Tumen, shall be fully protected, equally with the properties of Chinese subjects. Ferries shall be established on the River Tumen at places properly chosen, and people on either side of the river shall be entirely at liberty to cross to the other side, it being, however, understood that persons carrying arms shall not be permitted to cross the frontier without previous official notice or passports. In respect of cereals produced in mixed residence district, Korean subjects shall be permitted to export them out of the said district, except in time of scarcity, in which case such exportation may be prohibited. Collection of firewood and grass shall be dealt with in accordance with the practice hitherto followed.

Article VI.—The Government of China shall undertake to extend the Kirin-Changchun Railway to the southern boundary of Yenchi, and to connect it at Hoiryeng with a Korean railway, and such extension shall be effected upon the same terms as the Kirin-Changchun Railway. The date of commencing the work

of the proposed extension shall be determined by the Government of China, considering the actual requirements of the situation, and upon consultation with the Government of Japan.

Article VII.—The present Agreement shall come into operation immediately upon its signature, and thereafter the Chientao Branch Office of the Residency-General, as well as all civil and military officers attached thereto shall be withdrawn as soon as possible, and within two months. The Government of Japan will, within two months hereafter, establish its Consulates at the places mentioned in Article II.

In witness whereof the undersigned, duly authorized by their respective Governments, have signed and sealed the present Agreement in duplicate, in the Japanese and Chinese languages.

The 4th day of the 9th month of the 42nd year of Meiji.

The 20th day of the 7th month of the 1st year of Hsuan Tung.

HIKOKICHI IJUIN.
LIANG TUN-YEN.

Manchuria.—The Imperial Government of China, actuated by the desire to consolidate the relations of amity and good neighbourliness between the two countries, by settling definitely the matters of common concern in Manchuria, and by removing for the future all cause of misunderstanding, have agreed upon the following stipulations:—

Article 1.—The Government of China engages that in the event of its undertaking to construct a railway between Hsinmintun and Fakumen it shall arrange previously with the Government of Japan.

Article II.—The Government of China recognizes that the railway between Tashichao and Yinkow (Newchwang) is a branch line of the South Manchurian Railway, and it is agreed that the said branch line shall be delivered up to China simultaneously with the South Manchurian Railway upon the expiration of the term of concession for that main line. The Chinese Government further agrees to the extension of the said branch line to the port of Yinkow (Newchwang).

Article III.—In regard to the coal mines at Fushun and Yentai the Governments of Japan and China are agreed as follows:—

(a) The Chinese Government recognizes the right of the Japanese Government to work the said coal mines.

(b) The Japanese Government respecting the full sovereignty of China, engages to pay the Chinese Government tax upon coals produced in those mines. The rate of such tax shall be separately arranged upon the basis of the lowest tariff for coals produced in any other places of China.

(c) The Chinese Government agrees that, in the matter of the exportation of coals produced in the said mines, the lowest tariff of export duty for coals of any other mines shall be applied.

(d) The extent of the said coal mines, as well as all the detailed regulations, shall be separately arranged by commissioners specially appointed for that purpose.

Article IV.—All mines along the Antung-Mukden Railway and the main line of the South Manchurian Railway, excepting those at Fushun and Yentai, shall be exploited as joint enterprises of Japanese and Chinese subjects, upon the general principles which the Viceroy of the Eastern Three Provinces and the Governor of Mukden agreed upon with the Japanese Consul-General in the fortieth year of Meiji, corresponding to the thirty-third year of Kuangsu. Detailed regulations in respect of such mines shall, in due course, be arranged by the Viceroy and the Governor with the Japanese Consul-General.

Article V.—The Government of Japan declares that it has no objection to the extension of the Peking-Mukden Railway to the City Wall of Mukden. Practical measures for such extension shall be adjusted by the local Japanese and Chinese authorities and technical experts.

In witness whereof the undersigned, duly authorized by their respective Governments, have signed and sealed the present Agreement in duplicate, in the Japanese and Chinese languages.

The 4th day of the 9th month of the 42nd year of Meiji. The 20th day of the 7th month of the 1st year of Hsuan Tung.

HIKOKICHI IJUIN.
LIANG TUN-YEN.

AUSTRALIA'S TRANS-CONTINENTAL LINE.—The Northern Territory Bill under consideration has for its purpose the taking over of the debt of the territory, the purchase of the Port Augusta-Oodnadatta Railway and the construction of a trans-continental line connecting the Northern Territory with South Australia. The cost of this line would be about $23,000,000 and would tap a wonderfully fertile country.

JAPAN'S RAILWAY SERVICE.—The number of officials and employees under the Railway Board is 89,868, of which 87,827 are male and 2,041 female. Their annual salaries amount to 88,480,000 yen averaging only 17.13 yen per month per capita.

FRENCH TONKIN RAILWAY.—The line is now within a few miles of Yunnanfu and it is expected that service will be inaugurated by the first of November. The terminus at Yunnanfu has been completed for some time and with its offices, shops and warehouses. The extension of this line to Luchow in Szechuan is now being discussed.

SURYNEN CHENG-PEKING-KALGAN EXTENSION.—The Board of Posts and Communications has decided to extend the Peking-Kalgan line to Surynen Cheng. The survey and estimates have been completed and the cost is estimated at $20,000,000 and two years required for the completion.

THE KOWLOON-CANTON RAILWAY (BRITISH SECTION).—The estimates for construction expenditure on this section for 1910, amount to $1,800,548 which, added to the $10,015,223 expended up to the end of 1909, will amount to close to $12,000,000. Of the amount for 1910, $60,000 represent expenditure for workshops, $238,300 for station buildings and equipment, and rolling stock $307,440. Traffic receipts for the year are estimated at $20,000.

KIRIN-KUANGCHENGTZE RAILWAY.—The work of surveying this line will begin early in the spring under the direction of the Japanese Chief Engineer. It is the purpose of the authorities to press the work with all expedition and so as to complete the line within a year from next March.

RAILWAY OFFICIALS APPOINTED.—Taotai Jeme Tien-Yow, who so successfully directed the construction of the Peking-Kalgan Railway, has been appointed General Manager of the Szechuan-Hankow and the Peking-Shiyuan lines. Kuan Mien-chun succeeds to the management of the Peking-Kalgan line.

TSITSIHAR-HUNCHUN PROJECT.—The Russian Government has filed a petition for permission to construct a line connecting these two points basing their claim for recognition on the privilege granted the Japanese in the reconstruction of the Antung-Mukden line.

CHEKIANG RAILWAY COMPANY.—This company has been instructed by Peking to extend its line to Sanao on the South and the Tientsin-Pukow line on the North.

CANTON-MACAO RAILWAY.—The proposal by the Portuguese to construct and operate the proposed line jointly has been renewed, and an investigation is being made into the financial standing of the present concessionaire as to his ability to carry out the work. It is probable that China will decide to construct this line on her own account.

KASHING'S RAILWAY CONNECTION.—Three trains run daily between Kashing and Hangchow and two from Hangchow to Shanghai. From reports received this line is in good condition and admirably directed.

JAPAN'S THROUGH RAILWAY LINE.—By the end of November it will be possible to proceed by railway from the northern part of Hokkaido to the southern part of Kyushu.

CHAO-CHOW SWATOW RAILWAY.—Director General Chang Pih-shih has returned $800,000 to the Japanese capitalists and $200,000 borrowed from the Formosa Bank, thus eliminating Japanese influence from the operation of this line. This action was the result of a strong reprimand from Peking.

CONTRACTING NEWS

SHANGHAI MUNICIPALITY.—Erection Goods Lift for Electricity Works.—Messrs. Samuel McGregor & Co., Ltd., were awarded the contract at £411, the other tenders were:

	£
Shewan, Tomes & Co.	428
Siemssen & Co.	460
Brighten, Malcolm & Co., Ltd.	475
Shanghai Dock & Engineering Co., Ltd. Tls. 4,250	496
Shanghai Electric & Asbestos Co., Ltd.	511
Anderson, Meyer & Co.	518
Innis & Riddle	545
Siemens Schuckertwerke	578
Scott, Harding & Co.	650
Jardine, Matheson & Co., Ltd.	935
Arnhold, Karberg & Co.	965

MUNICIPALITY SINGAPORE—COAL.—The tender of Messrs. McAlister & Co. to supply 2,000 to 3,000 tons of Hetton at 22/ ex-ship Singapore or the same amount of Abermain at 21/ shipments to be made in November and January next.

MARITIME CUSTOMS, PEKING.—Erection concrete water tanks at Swatow—Awarded Messrs. Howarth Erskine Ltd.

MUNICIPALITY SINGAPORE.—34 steel stanchions. Awarded Messrs. Riley Hargreaves & Co., Ltd. Price $1,200.

U. S. COMMISSARY, MANILA.—Vegetables. Awarded Hashim & Co., Manila. Price: Potatoes, ₱3.98; and Onions, ₱4.48 per cwt. The other bidder was the firm of Messrs. Castle Bros.-Wolf & Sons, Potatoes, ₱4.50, and Onions ₱4.20 per cwt.

U. S. NAVY-ELECTRICAL SUPPLIES.—Awarded Philippine Electrical Supply Company. 500 brass key sockets at ₱0.399 each; 30,000 ft. R. C. Wire at ₱0.029 per ft. The other bidders were F. L. Strong, F. R. Thompson, Germann & Co. The Electrical Supply Co. were not the lowest bidders but secured the contract on agreement to give immediate delivery.

TENDERS INVITED.—H. B. M. Naval Yard, Hongkong.—Timber Material Supply for One Year of Teak, American Fir, Oregon Pine, Camphor Wood, Hardwoods, in bulk, thick stuff, scantling, plank and board. Further information address Naval Store Officer, H. M. Naval Yard.

TENDERS INVITED.—Bureau of Supply, Paints and Hardware, Manila, opened November 1st: Hospital Furniture including hardware, glassware, enameled ware, bottles, electrical equipment, etc., to be opened December 15th; hardware, plumbing supplies, etc., to be opened November 22.

FOR SALE

Patent Slip supplied to H. H. The Rajah of Sarawak by Messrs. Day Summers & Co., Ltd., of the Northam Ironworks, Southampton, England, for sale f. o. b. Kuching, Sarawak. The Slipway has never been erected and was designed to take a vessel of a total displacement of 570 tons, 44′ 6″ over paddle-boxes, 175 ft. long drawing 1′ 1½.″ All complete including winding gear and rails, except for the boiler and can be seen lying here. Full particulars will be supplied to any bona fide enquirer on application being made to the undersigned.—H. F. CAREW-GIBSON, *Commissioner of Public Works and Surveys.*

THE EAST BATAN COAL COMPANY'S MINES

One of the most promising enterprises in the Philippines is that of the East Batan Coal Mining Company operating on the Island of Batan, in the province of Albay. Work on the development of the coal deposits began in 1906 by private capital and at the end of the year over 200 feet of tunneling had been accomplished and 150 tons of coal taken out. A wharf was built and small vessels called for coal during the early part of the year 1907. The coal was found very satisfactory and while not equal to the Australian proved much more economical. In September, 1907, the East Batan Coal Company was organized with a capital of Pesos 200,000 and Pesos 50,000 in stock were put on the market. Owing to the panic, little was sold, but in November of that year work was commenced on a 5 ft. 6 in. seam on the west of the barrio of Batan and since that time all the energy of the company has been concentrated there with splendid results. As the workings go deeper the quality of coal improves until at the present time the average consumption of Batan Coal is very little in excess of the Australian product. In July, 1908, a syndicate was organized in Cebu to purchase the remaining treasury stock at par value. This syndicate not only purchased the stock but also took sufficient private stock to give it controlling interest. Then began a vigorous policy of development and there were added to the plant more lighters to expedite the coaling of ships, a wharf 300 feet long with plenty water alongside to accommodate the largest ship in the world with a railroad from the mine to the wharf equipped with two locomotives and 50 2-ton cars to expedite the handling of the product. Besides there were secured additional track and cars for the mine work, pumps, hoists, tools and machinery of all kinds for repair shops, etc. Offices were built and a barrio laid out to accommodate 2,000 miners and their families. Development work has been carried on continuously until over half a million tons have been blocked. One feature of the mine is its freedom from gas.

The harbor of Batan is located west of the Rapu Rapu Straits between Batan and the Rapu Rapu islands, is practically landlocked and well protected and secured from bad weather. There is an average of 54 feet of water with mud bottom.

It is now proposed by the company to continue the development at the rate of 1,800 tons of coal a day and to increase the capacity of the plant until it is capable of an output of from 1,000 to 2,000 tons daily. Already orders have been placed for more than 1,000 tons a day without solicitation. To carry out this plan the East Batan Coal Mining Company has been organized with a capital stock of Pesos 3,000,000 and a purchase made of the old company's property for Pesos 2,000,000. This leaves Pesos 1,000,000 of the capital stock of which it is proposed to put 8,000 shares on the market at par value of pesos 50 a share. This amount is estimated sufficient to carry out the project and equip the mine for future needs. It is also proposed to distribute the balance of the treasury stock among the shareholders purchasing the new issue at a later date.

The coal is sold at the mines at the rate of Pesos 6.50 a ton and the cost of producing being about Pesos 3.20 under present methods.

It is the desire of the Directors to install a complete electric plant at the mines, using electrical coal-cutting machines, electric coal gathering equipment, and electric pumps, and to light the mine throughout by electricity. The installation of this machinery will greatly reduce the force of laborers in the mine and at the same time greatly increase the production.

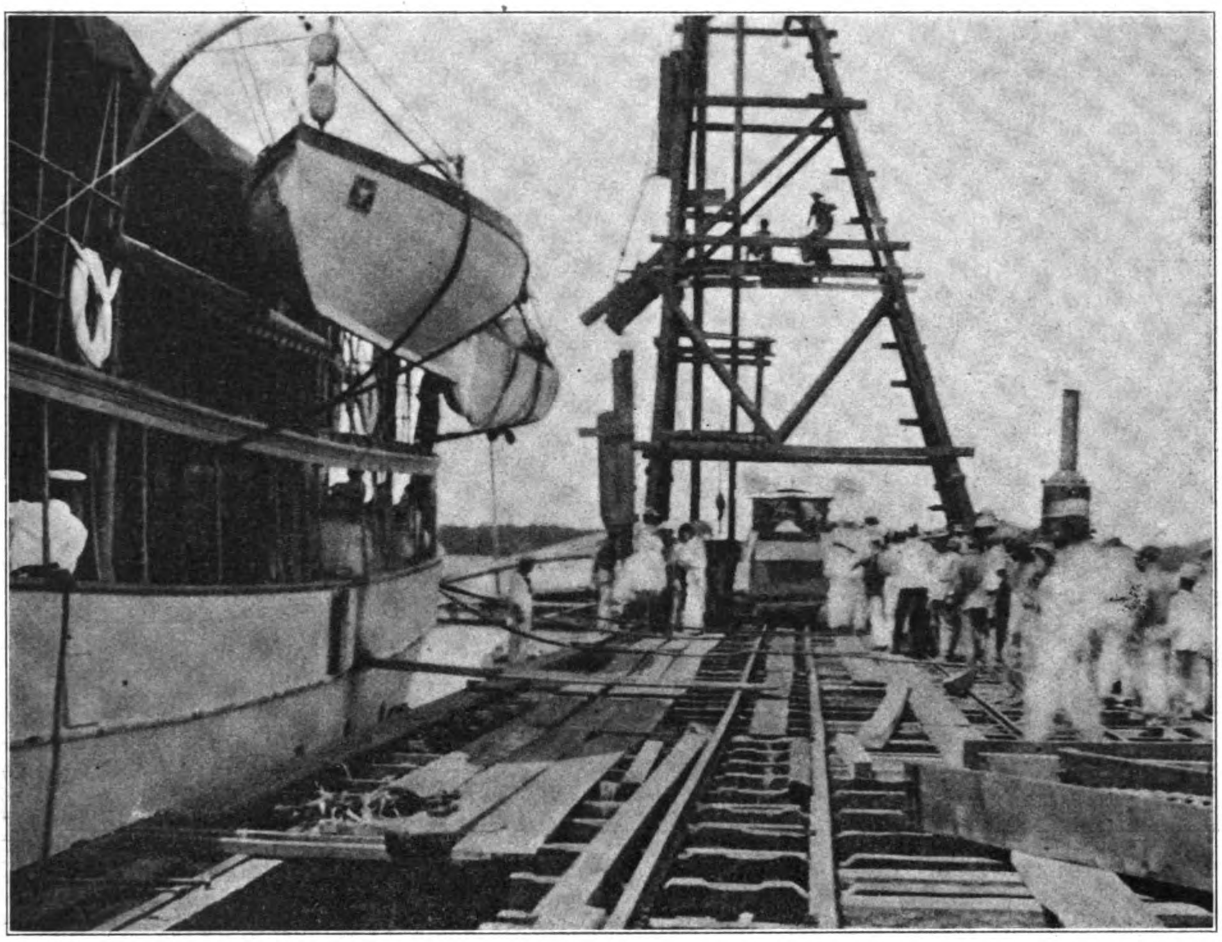
Lighting the mine with electricity will not only facilitate the work below ground, but at the same time eliminate the present costly system of lighting with candles. This new system will also enable us to light up the plant outside the mine, making it possible to work the mine as well as dispatch ships either night or day.

This system will enable all the mechanical part of the plant to be concentrated at one central station, so that the same force of engineers and firemen will do the work of the several stations as arranged at present, thus greatly reducing the operating expenses, and relatively increasing the efficiency of the plant.

The excessive rates charged by the Inter-Island steamers to move cargo coal to ports within the islands, and the lack of equipment on these steamers for handling cargo coal, will necessitate the company procuring, by purchase or otherwise, suitable steamers for placing cargoes of coal at the various markets within the islands. Coal for foreign ports, however, may be transported by foreign ships. From such ships we already have very low rates of transportation.

494,209 tons of coal, of the market value of about ₱5,000,000, were imported into the Philippine Islands during the past fiscal year.

With the proposed new equipment, the greater part of this coal can be supplied from the mines of "The East Batan Coal Mining Company," and the millions of pesos paid for same thus be kept in the Philippine Islands, instead of going out of the country, as at present.



MECHANICAL COAL-LOADING TOWER ON EAST BATAN COAL MINING COMPANY'S WHARF AT BATAN

It is proposed to extend the present wharf from 300 to 600 ft. and increase the present bunkers now in course of construction to a capacity of 6,000 tons. Under this method we can load ships with bunker coal in a few hours while a cargo ship could be loaded with 6,000 tons within 24 hours at a cost of a few cents per ton.

The proposed extension to the present wharf as well as the leading bunkers will all be built of native hard lumber, of which the Company possesses abundance on its own lands adjoining the harbor.

The present wharf is built of dagan, and the proposed extension will be built of the same material—a native wood that resists well the teredo.

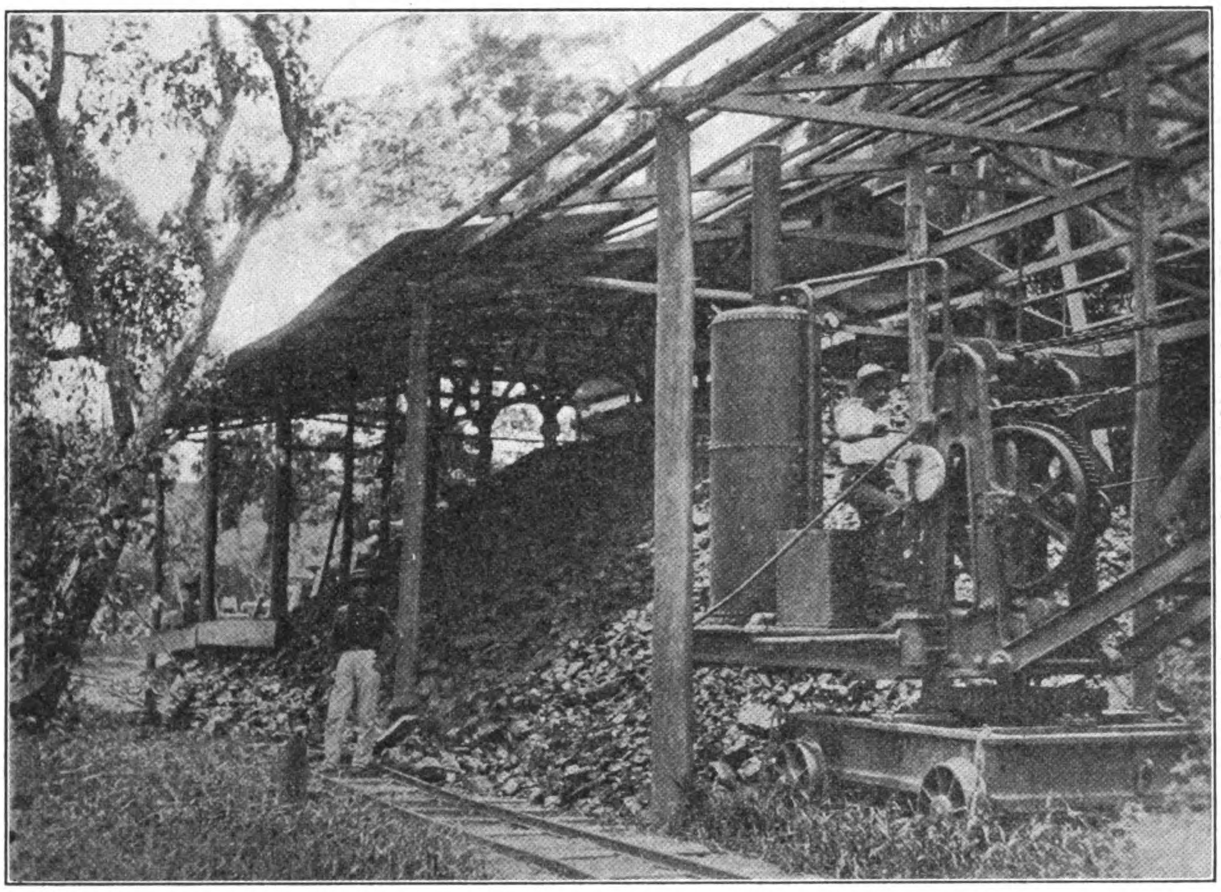
These bunkers will be used for the storing of the coal as it comes from the mine, and will be so constructed that vessels will take shipside delivery of their coal direct from the bunkers.

While the Company already possesses a very excellent transportation equipment between the mine and the wharf, it will be necessary to add to this equipment additional rolling stock to care for the increased production. The present haul is 3,000 ft. between the mine and the wharf, on a single track with a few turnouts, but this line will have to be double-tracked to accommodate the increased haulage.

Steaming tests made by the Bureau of Science with Batan and Australian coals on two coast guard vessels, sister ships, by ordinary steaming for 5,000 miles gave the cost of Australian coal used at Pesos 0.66 a mile and with Batan coal only Pesos 0.38 a mile making a savings of Pesos 1500 by the vessel using Batan coal for that distance.

The United States Army Transport Dix gave the coal an exhaustive test on a voyage from Batan to Honolulu with the result that the coal consumed was only about 18% in excess of Australian. This coal was taken from the Government Mine on the west part of the Batan islands where a wharf and bunkers are being erected there and the Government has appropriated $100,000 to carry on the work at the mine during the present year. About twenty vessels are now coaling at Batan and were it not for the limited equipment, many more would take advantage of the cheap coal available.

The gentlemen identified with this project are representative businessmen and officials of the islands. The President is Col. J. J. Rafferty, Collector of Customs of Cebu, and the First Vice-President is A. U. Betts, Ex-Governor of the Province of Albay. The Secretary is Harold Homan, Esq., of Cebu, the Treasurer, Messrs. Joaquin Castro Co., of Cebu, and Ernest S. Daniels, Esq., is the General Manager.



THE "COAL STORAGE PILE" AND LOADING CRANE OF THE EAST BATAN COAL MINING CO. LOCATED BETWEEN MINE AND WHARF

F. M. S. TIN OUTPUT FOR AUGUST

	Piculs.
Belat	556
Bruang	123
Bruseh	230
Gopeng	600
Kanaboi	397
Kinta	430
Kuantan	106
Lahat	800
New Gopeng	165
Pahang Consolidated	1,340
Pengkalen	400
Pusing Lama	545
Rambutan	400
Redhills	603
Royal Johore	83
Salak South	286
Sempam	78
Serendah	440
Sipiau	95
Tekka	650
Tronoh	3,360

PHILIPPINE GOLD OUTPUT FOR SEPTEMBER

Benguet Consolidated, 307.5 oz. fine bullion and 347 oz. cyanide matte.

Paracale Gold Dredging Co., Ltd., 400 oz.

THE NEW PHILIPPINE HEMP STRIPPING MACHINE

The new machine built for the Philippine Hemp Machine Company by the Hongkong and Whampoa Dock Company, Ltd., arrived in Manila last month and was installed on the Palomar Park grounds where extensive tests were made of its effectiveness and capacity. They were pronounced even more successful than anticipated. The new model, and the machine definitely decided upon, has twice the capacity of the first machine turned out by the company. It is built in conformity with the specifications made after years of experience in working out the mechanism with a view to providing a maximum of strength with a minimum of weight. The machine was on exhibition every afternoon and attracted a large number of daily visitors while in Manila. It weighs about 2,000 pounds and has a capacity of 600 pounds of fine stripped hemp a day. The tests at Palomar were very satisfactory, but the company decided to make extended practical tests in the hemp fields before satisfying themselves of its adaptability to all the conditions of operation. For the reason it was difficult to secure young hemp stalks in the vicinity of Manila the company decided to take the machine to Davao where the best quality of hemp is grown. The machine is now being tested out there, and if everything is satisfactory, and there is every reason to believe that the machine will meet every requirement, an order will be placed for 25 additional machines at once.

Tests made by the government laboratory demonstrate that the tensile strength of machine stripped hemp is 50% greater than the hand stripped product.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, LIGHT, POWER, TELEGRAPHS, TELEPHONES, AIRSHIPS, ETC.

SWATOW ELECTRIC LIGHT COMPANY.—This company was recently reorganized with a capital of $140,000. The former company failed some time ago after exhausting more than half of its capital in losses. This was largely due to inadaptability of the old installation. New engines are being installed to replace the old ones, the latter proving far from being of further service.

SWATOW-CHENG-HAI ELECTRIC RAILWAY PROJECT.—A company was recently formed with a capital of $300,000 for the purpose of building a railway connecting the city of Swatow with Cheng-Hai, a distance of 10 miles. The construction of this line is not only considered desirable, but offers no serious difficulties.

HANKOW TELEPHONE SYSTEM.—It is the purpose of the projectors of the scheme to install the Hankow system to connect all the different foreign communities with the one central.

CANADIAN PACIFIC WIRELESS.—The installation of the Marconi system on the steamers of this line has proven most satisfactory. The Empress of India reported to the Hongkong agents via Yokohama at a point 1,200 miles from land on her last voyage to Vancouver.

JAPANESE WIRELESS STATIONS.—In the Nagasaki district there are two stations—one at Osesaki on the southern extremity of Goto Islands and the other at Tsunoshima on the west coast of the main land. According to Consul Scidmore, the wave lengths are 984.3 feet and the radius of each station approximately 137 miles. The charges for this service from foreign vessels are 42.5 cents for the first five words and 8.5 cents for each additional word.

AIRSHIP SOCIETIES IN JAVA.—The membership of the airship societies of Batavia and Sourabaya is reported flourishing, and a flying machine has been ordered from Europe. Subscriptions to the amount of 9,000 guilders have already been subscribed by the members of the Sourabaya branch for this purpose.

SHANGHAI IMPERIAL CHINESE WIRELESS STATION.—The installation of the wireless system with the apparatus removed from the Palace Hotel is complete. The mast erected is 160 feet high and messages only for transmission to ships at sea will be taken. The charge is 10 cents (mex) a word with a minimum total for message of $1.

TAIYUENFU (SHANSI) ELECTRIC LIGHT.—The latest reports from this point are to the effect that the installation of the electric light system for the city will soon be completed. The offices are finished and the plant is being installed. Some difficulty was experienced in building the steel chimney, but that has been successfully accomplished.

TYPHOON INTERFERES WITH CABLES.—Communication between Hongkong, Foochow, Shanghai, Formosa and the North was interrupted during the recent severe typhoon and messages were delivered to Shanghai and other points north by way of Manila. Hongkong messages for Formosa were delivered via Japan. The Foochow-Formosan Cable was interrupted about 10 miles off Tamsui and the land wires near Foochow. Repairs were made promptly and communication restored.

PEKING'S NEW TELEPHONE SYSTEM.—The contract secured by the Western Electric Company includes the installation of a trunk system of the latest type with two switch boards similar to those used in New York City, the latter having a capacity of 10,000 telephones. The equipment ordered for present needs is to accommodate 2,500 telephones which will be increased to meet the demand. Several hundred feet of lead covered aerial as well as for underground wire will be utilized. With the completion of this work successfully, it is the purpose of the Imperial Government to go extensively into the installation of different systems in the leading cities of the empire.

ELECTRIC RAILWAY TRAILERS FOR SHANGHAI.—The two trailers ordered by the Shanghai Electric Tramways for experimental purposes are expected in November and if satisfactory the order will be duplicated.

PHILIPPINE CABLE SHIP.—Director Helm of the Bureau of Navigation has purchased the Manila at Singapore for use as a cableship. It cost ₱165,000. This vessel is of 2,722 tons, 307 feet in length, 40 foot beam and 14 foot draught.

SIAMESE AEROPLANES.—The Bangkok Dock Company recently advertised that it was prepared to receive orders for the Bleviot flying machine at 7,000 ticals and from reports there seems to be great interest roused.

TOKYO-OSAKA RAILWAY PROJECT.—The application for a charter to construct an electric line connecting these two points has been rejected by the Government on the ground that the construction of this line by a private company would be inconsistent with the policy of Government Nationalization of railways. It was also decided that a six sen fare would not pay a profit on an investment of yen 100,000,000.

NEW JAPANESE AEROPLANE.—Mr. S. Narabara, son of Baron Narabara, and lieutenant in the Japanese Navy, is the inventor of an airship of new design. It is propelled by gasoline with provision for utilizing the waste gas from the engine. It is raised in the air by its own power.

TANJONG PAGAR DOCK POWER STATION.—This plant, installed by the Dock Board at Keppel Harbor for the purpose of supplying power to operate the machinery, the pumping plant of the old and new docks, and the large cranes of the wharves, was formally opened last month. The plant has a capacity of 1,700 h. p. and is capable of expansion to 3,700 h. p. Miss Anderson, daughter of Sir John Anderson, pressed the lever that started the generators.

ANGLO-JAPANESE HYDRO-ELECTRIC POWER COMPANY.—According to latest advices the experts sent out from England to examine into the feasibility of this project have reported favorably with the exception of a couple of changes in the original draft of the plans. The recommendation is made to reduce the retaining walls from 300 feet to 200 feet in height and that the reservoir be located at Ushikubi about six miles more distant than in the original site. This will give a fall of 1,100 feet, and a reservoir with a capacity of 27,000,000 cubic feet delivering a h. p. of 60,000 at Tokyo. The experts leave for England this month to report and it is believed that capital will be forthcoming to finance the scheme.

NAGASAKI-FORMOSAN CABLE.—The starting point in Japan of the new cable will be Moji and it is estimated that the expense will reach yen 800,000.

KULING ELECTRIC RAILWAY.—A scheme to build a railway from the plains up the mountain to Kuling is being agitated by the Kuling authorities. Plans were outlined for a line equipped with cars capable of carrying a dozen passengers from the bottom to the top of the mountain at intervals of forty minutes. From indications it would seem that by the end of 1910 this enterprise will be realized.

JAPANESE GAS COMPANIES.—Demand for gas for lighting and cooking purposes in Japan is increasing as is evidenced by the number of charters for w ich applications have been made. Charters have already been granted for Tokyo, Toyohashi and Moji, while applications have been filed from Okayama, Hirosima and Tokushima. The reason assigned is the increased cost of charcoal for heating purposes.

RUSSIAN FLYING MACHINE.—Advices from St. Petersburg are to the effect that an engineer named Rostovitch has perfected a dirigible airship. It is propelled by a 60 h. p. engine and has a speed of 60 miles an hour. It is reported to have great lifting power.

HONGKONG NAVAL YARD INSTALLATION.—The modern electric power generating plant installed by Messrs. Siemens Bros. Ltd., Dynamo Works, Stafford, was formally opened, September 13th. A pair of Babcock & Wilcox type boilers are installed in the boiler room and supply two magnificent triple expansion Bellis & Morcom engines, the latter being coupled directly with the generating plant that supplies all the light and power to the Naval Yard. These engines are each 550 h. p. The dynamos, two in number, each 300 kilowat, are provided with the latest devices for effectual ventilation. The main switchboard has one panel for each department supplied and registers automatically the current available. In the battery room are 125 cells with a total capacity of 1,000 ampere hours. Mr. J. Douglas Butcher, resident engineer, was in charge of the installation in the interest of Messrs. Siemens Brothers.

PROJECTED ELECTRIC RAILWAY FOR ILOILO.—A scheme is on foot to provide the city of Iloilo with an up-to-date street car service and connect the city with Molo and Jaro. It is believed that sufficient local capital can be secured to finance the project.

ILOILO TELEPHONE SYSTEM.—The installation of the new system in the second city of the Philippines is now almost complete, and it is believed that a most prosperous exchange will be established not only giving a substantial service to Iloilo, but which may be extended to the suburbs with satisfying results.

CHIENTAO-HONGSHUN TRAMWAY.—An application has been filed with the central government by the Chinese in Chientao for permission to build a tramway between the two points, a distance of about 75 miles.

THE YAMATE ELECTRIC RAILWAY.—A movement is on foot to supplant steam by electricity on what is known as the Tokyo Circular Railway. This line runs from Shinagawa via Tabata to Akabane, where a connection is made with the line running from Uyeno northward. A transfer station to effect connection with the electric line is being built and it is thought will be ready for traffic by the first of the year.

CHENGKIANG ELECTRIC LIGHT.—The equipment for an electric light plant has been ordered from England to cost in the vicinity of Tls. 70,000. Other improvements are proposed in this city.

EMPRESS DOWAGER ORDERS ELECTRIC LIGHT AND TELEPHONES.—The Chang Chun Palace is to be provided with these modern conveniences by direction of the Empress Dowager.

PUBLIC WORKS, DOCKS, WHARVES, BUILDINGS, ETC.

SINGAPORE PUBLIC WORKS.—During the year 1908, 290 feet of cylinder foundations were laid in the new harbor at the Northern end of Johnston's pier and 590 feet were completed on the Southern end. Pulan Quarry was opened up and supplied 36,000 tons of granite rubble for the inner south and west moles. Work progressed favorably on the docks and wharves of the Tanjong Pagar under the direction of John Aird & Co., contractors. The cost when completed will reach approximately £1,000,000. The wharves construction comprises a renewal in concrete blockwork of over 3,100 feet and wrought iron cylinder construction of 1,131 feet. The minimum depth when completed will be 33 feet alongside. The contract for the new graving dock and works at Keppel Harbor represents a value of £350,000 approximately and it is expected completed in 1912.

MILITARY ICE PLANT IN ILOILO.—The U. S. Quartermaster's Department is preparing plans for the erection of a large up-to-date ice plant at Iloilo for the purpose of supplying ice to the military in the Department of the Visayas.

FLOATING BRIDGE AT POOTUNG.—The construction of a floating bridge over the Huangpu to Pootung is being agitated by the Chinese. The estimated cost is placed at Tls. 150,000.

CHARTERED BANK'S NEW BUILDING AT BANGKOK.—These fine premises were formally opened on September 5th in the presence of Prince Kitykaru. The building is two stories with a frontage of 120 feet and depth of 140 feet. Messrs. Howarth Erskine, Ltd., were the contractors.

NEW DIET BUILDING AT TOKYO.—The cost of the projected building for the Japan Diet is estimated at yen 15,000,000 and the first instalment of yen 2,000,000 will be provided in next year's budget. The construction will cover a period of eight years.

NEW NAVAL DOCK AT KURE.—This new dock when completed will accommodate a vessel of 30,000 tons and is known as number three. The excavation has been completed and the ceremony of founding the dock was performed recently by Admiral Yamanouchi. The work of lining is now in progress.

TOKYO HARBOR IMPROVEMENTS.—There is renewed interest in the plans of Dr. Furuichi for the improvement of the harbor and reclamation scheme. As it has been presented, in all, the cost will be about yen 74,000,000, of which yen 48,000,000 represents the cost with interest, etc., of the harbor construction and yen 36,000,000 the reclamation work. This amount will be partly defrayed by the sale of reclaimed land upon which would be realized about yen 50,000,000. It is estimated that a great saving in transportation now charged for carrying goods from Yokohama to Tokyo.

HUANGPU CONSERVANCY WORKS.—The announcement of the Taotai of Shanghai that there were no funds to continue the work of dredging resulted in the work under way being stopped by the Asiatic Dredging Company whose previous contract expired early in September. The matter has been referred to the diplomatic corps at Peking and great interest is shown by the commercial community of Shanghai in urging provision for continuation of the work. It is believed that should progress be delayed much of the work will be undone by continual silting.

PORT ARTHUR HARBOR REGULATIONS.—New regulations have been prescribed which will remove the rules requiring Naval inspection of vessels arriving and departing.

GOMBAK RIVER RETAINING WALL.—The section of the retaining wall being constructed under contract by the Federated Engineering Company will be finished by the end of the month and several months ahead of time.

JAPAN'S PUBLIC WORKS.—The budget for next year will provide for the expenditure by the Department of Justice of yen 600,000 for the improvement of prisons and the construction of law courts.

TSURUGA HARBOR WORKS.—It is understood that the next Japanese budget will provide the sum of 800,000 yen for the purpose of improving this harbor. The money will be expended during the next four years.

LIAO RIVER CONSERVANCY.—The Foreign Chamber of Commerce of Newchwang has recommended the imposition of a duty of one tael per thousand on imported goods, the proceeds to go to a fund to help defray the expenses of this work.

CHINESE PROPOSED NAVAL DOCKYARDS.—The latest from Peking is to the effect that Kiangnan, Foochow, Whangpoo and Weihaiwei have been selected as permanent sites for the naval stations by the Navy Board, and that until Weihaiwei is available, Chefoo might be utilized temporarily.

PUKET HARBOR IMPROVEMENTS.—The contract between the Tongkah Harbor Tin Dredging Company and the Siamese Government provides that the former excavate a dock and channel thereto 20 feet deep.

TONKIN RIVER IMPROVEMENTS.—An appropriation of $150,000 has been made for the use of the Public Works Department in repairing the damage by floods to the embankments of rivers.

SHANGHAI JAIL WORK SHEDS.—The expenditure of Tls. 18,219 for the construction of this building has been authorized. It will be built of grey brick and reinforced concrete. Convict labor will be used.

CHINA'S SENATE BUILDING.—The proposed senate building is estimated to cost Tls. 250,000 and its erection cover a period of three years.

SWATOW WATERWORKS.—A company has been formed with a capital of $600,000 for the purpose of providing a modern system of water supply for the city. The selection of the site for the reservoir and other plans have not been finally decided upon.

CONSERVING CHINESE WATERWAYS.—The Taotai of Hangchow has urged that every effort should be made to conserve the waterways in the Huchow, Chiahsing and Hangchow prefectures.

MANILA PAVING BLOCK CONTRACT.—The Cadwallader Gibson Lumber Company has secured the contract for the supply of 20,000 molave paving blocks to the city and 60,000 will be supplied by Jose de Keyser de Leon. The price does not exceed ₱151.80 per thousand.

MORO PUBLIC WORKS.—The budget for 1910 gives estimates for construction of buildings, ₱9,198; construction of roads and bridges ₱54,100; wharves and sea walls, ₱64,000.

CHINESE PROVINCIAL PRISONS.—The Ministry of Finance has granted the sum of Tls. 250,000 to be used in constructing and improving the prisons in the provincial capitals.

HANGCHOW PROVINCIAL BUILDING.—The construction of the new provincial assembly hall is progressing slowly.

SHIPBUILDING, MERCHANT MARINE, FISHERIES, ETC.

CHINA'S NAVAL MATTERS.—Interest in the development of the navy continues. The Naval Department requested the immediate appropriation of Tls. 1,000,000 and the Board of Finance has advanced Tls. 500,000 and will appropriate the balance by the end of the year. This will be used for the expenses of reorganization. In addition, the Board of Finance has appropriated a surplus sum of Tls. 1,800,000 provided by the Kiukian Customs for the fund. Native papers announce many contributions from the provinces. Hangchow, Tls. 1,000,000; besides yearly contributions; the Viceroys of the Maritime Provinces have pledged Tls. 12,000,000 in four yearly instalments; one prominent Chinese, Cheung Yeun-Chin of Hongkong, subscribed $200,000. The estimate of Tls. 18,000,000 for preliminary expenses covering a period of four years would seem to be subscribed. The tour of investigation of H. I. H. Prince Tsai Hsun and Admiral Sah was most satisfactory and there seems a general sentiment in support of the reorganization. The report on the proposed selection for proposed naval stations has not been made public.

JAPANESE NAVAL CONSTRUCTION.—The Japanese press reports that the admiralty has ordered three second class cruisers, one each to be built at the Kawasaki Dockyard and the Mitsu Bishi and the third at Sasebo. Each will have a displacement of 5,000 tons and a speed of 26 knots.

FLOWER BOAT DEDICATED TO THE LATE EMPRESS DOWAGER.—The sum of Tls. 30,000 was expended by the Imperial Household Department in the construction of a flower boat and the ceremony of burning it took place on August 30th.

HANKOW-CHUNGKIANG STEAMERS.—The Taotai at Chungkiang has interested Chinese merchants to the extent of Tls. 200,000 to make part payment on the cost of two steamers to ply between these two points. These vessels are expected from England next month.

FOOCHOW TYPHOON.—The terrible typhoon that visited the vicinity of this port is reported to have destroyed forty per cent of the native craft including over 50 cargo boats. It is estimated that over 2,000 natives lost their lives.

BRITISH NORTH BORNEO SHIPPING.—The report for 1908 shows that the total shipping for the year was 140,000 tons of which 40,643 tons were under the British flag and 72,866 under the German.

HONGKONG AND WHAMPOA DOCK COMPANY.—Engineer Commander Mark Rundle has been appointed First Assistant to the Chief Engineer at the Dockyard. Mr. Dyer, the expert, who overhauled the affairs of the Dock Company, has succeeded Mr. R. Mitchell as Chief Manager. Mr. W. Wilson is the new Work Manager and Mr. J. W. Graham will return soon to resume his position as Superintendent.

BRITISH CHINA STATION.—H. M. S. Minotaur is to relieve H. M. S. Alfred as flagship on the China Station. The Minotaur is a twin screw armored cruiser of 14,600 tons.

U. S. NAVAL CONSTRUCTION.—Messrs. Cramps and the New York Shipbuilding Company were the lowest tenders for the construction of two 26,000 tons battleships for the U. S. Government. Their prices were $4,450,000 and $4,675,000.

MANCHURIA FISHERIES.—The Board of Agriculture, Industry and Commerce is preparing a draft of a treaty with Japan for the purpose of regulating the Manchurian Fisheries.

NEW YANGTSZE TUG.—The trial run of a new tug, Shu Tung, constructed by Messrs. Thornycroft & Co., and put together at the Kiangnan Docks for the Szechuen Steam Navigation Co. was made last month and made an average of 11 knots.

KOREAN SHIPPING MONOPOLY.—An increase of over 30 per cent in rates is the result of an agreement between the Osaka Shosen Kaisha and the Nippon Yusen Kaisha by which these two companies control the shipping to Korea and North China.

AMUR RIVER SALMON FISHERIES.—Reports from Harbin are to the effect that the output of the fisheries for the year has been unprecedented and there is promise of a glut of the market.

TRANSATLANTICA COMPANY'S ACTIVITY.—A report from Shanghai is to the effect that this company is to extend its service to Manila, to include Shanghai as a port of call.

PHILIPPINE SARDINES.—The organization of a company to establish a large sardine canning plant at Navotas, near Manila, is being agitated. The Philippines have an abundance of different varieties of the best quality of sardine.

NAVAL DOCKING RECORD.—The flagship Charleston of the U. S. Asiatic Squadron was docked, thoroughly scraped, cleaned, given two coats of paint and relaunched in nine hours, at Olongapo, last month.

NEW AUSTRALIAN SQUADRON.—It has been announced that this squadron will comprise one armored cruiser, three other cruisers, six destroyers and three submarines. They will be built in England.

JAPANESE SUBSIDIES.—The appropriations shown in next year's budget are as follows:

Nippon Yusen Kaisha.	Yen.
European service	3,210,000
North American service	500,000
Total	3,710,000
Toyo Kisen Kaisha.	
North American service	1,940,000
South American service	600,000
Total	2,540,000
Osaka Shosen Kaisha.	
Various services	1,000,000

NORTH GERMAN LLOYD REPORT FOR THE HALF YEAR.—The profit announced for the first half of the present year is £250,000 against profit for the corresponding term last year of £350,000. This company has entered into a combination with the Ellerton lines and arranged for through service between Europe and India at reduced rates.

MANILA CUSTOMS MOTOR BOAT.—The launch built in Hongkong to the order of the Manila Trading and Supply Company for the Philippines Customs made 14.75 knots on her trials in Hongkong. This vessel will be used for night patrol in Manila Bay.

SHANGHAI DOCK AND ENGINEERING COMPANY CONTRACTS.—This company has secured the contract for the construction of four steel self discharging barges from the Macao Government.

MINES, MINERALS AND THE METAL TRADE

BATAN COAL COMPANY OUTPUT.—This company is now prepared to deliver over 300 tons a day. The product has been found very satisfactory by the Quartermaster's vessels and the Bureau of Navigation and tests made by the naval authorities are satisfactory. On an extended run it was found that it required 23% more Batan than would be required of Australian coal. This difference in quantity does not offset by any means the difference in price.

JAPANESE CEMENT COMBINATION.—A project is on foot to form a guild to include twenty of the leading cement plants in Japan. The output of cement in Japan annually exceeds two million barrels.

TIMOR OIL FIELDS.—Hongkong capitalists are interested in the development of what is reported to be most valuable deposits of oil at this point. Machinery has already gone forward for testing purposes.

PEKING SYNDICATE MINES.—The output for the quarter ending June 30th amounted to 57,568 tons.

SHANGHAI COAL MARKET.—Of the million tons yearly consumed by Shanghai, 800,000 tons come from Japan and the balance from Kaiping and other Chinese coal mines. The import of Fushun coal has jumped from 20,000 tons to 100,000 tons.

GERMAN NAVAL CONTRACT.—A contract has been made by the German Government for the supply of Poshan coal to the vessels of the German East Asian station.

TUNGKWANSHAN MINE DEVELOPMENT.—Fifteen pieces of mining machinery arrived last month at Wuhu for installation in the above mine.

PHILIPPINE MINING ACTIVITY.—A group of gold mines situated near the Madison Gold Mining Company Group in Antimok, Benguet, was sold last month to San Francisco capitalists. The same interests have offered ₱1,000,000 for a tract of placer ground in the vicinity of the Paracale Gold Dredging Company's property. There is also a German Syndicate negotiating for the purchase of the famous Mancayan Copper Deposits in Lepanto province. Other syndicates are also investigating this valuable property. The Stanley Paracale Gold Dredging Company reports progress and will soon be prepared to operate in the best paying ground. The first few days' operations brought 45 ounces.

INDIA'S COAL OUTPUT.—The total output for the year amounted to 12,150,000 tons, an increase of about 15.5% compared with 1907.

AMUR RAILWAY GOLD FIELDS.—Recent discoveries of deposits in the Trans-Baikal region along the line of survey resulted in a stampede of railway employes. Fabulous tales of finds of big nuggets are being received.

SHAOPINGTAO IRON MINES.—A Japanese capitalist has applied to the Kwangtung Government for permission to develop iron deposits in that vicinity.

F. M. S. TIN EXPORTS.—The total export of tin for the first eight months of the present year amounted to 499,089 pikuls as compared with 537,132 in 1908.

MALAYA TIN DREDGING PROPRIETARY.—This corporation has secured a prospecting area in Malacca of eight miles carrying the right to lease 1,000 acres from the Straits Settlements.

THE GERMAN MINING COMPANY CONCESSION.—The Germans have offered to surrender the mining property at Maoshan to the Chinese Government for $476,000 gold.

OIL CARRYING TRADE.—The Toyo Kisen Kaisha has entered into a contract with the Hoden Oil Company to carry 60,000 tons yearly at the rate of 15 yen a ton.

THE NETHERLANDS INDUSTRIAL AND TRADING COMPANY.—This company which controls the oil industry at Balik Papan, Dutch Borneo, is prepared to store 60,000 tons of oil at this port. The equipment consists of 15 petroleum tanks, each having a capacity of 4,000 tons. The steamers of the Royal Packet line are equipped with oil burners and call here for their supply of fuel.

KOREAN MINING.—Japanese Concessions granted since the opening of the mineral lands to exploitation number 600, of which 300 are for gold deposits. The royalties paid last year amounted to yen 60,000, while the royalty due on all concessions amounted to yen 760,000. There is prospect of many concessions being revoked. The French Syndicate, which has been operating with a capital of yen 10,000,000, has been taking out yen 500,000 worth of gold annually.

BURMA MINES, LTD.—The board of directors of this company is planning to increase the plant so as to smelt 5,000 tons of ore and slag monthly. This equipment will include a large water jacketted blast furnace, additional blower, engine, new charge hoists and scales with two extra boilers, and an electric lighting plant. The output of the mine for the month of August was 2,500 ounces of silver and 528 ounces of lead.

BURMA OIL INDUSTRY.—There are nine companies with a combined capital of $22,700,000 engaged in the extraction or refining of petroleum in Burma. The unrefined oil produced during the year 1907 amounted in value to nearly 3,000,000 dollars gold. The exports of by-products include candles to the value of $486,771 and of wax $547,411.

AN CH'I COAL AND IRON MINES.—A native company is being organized in Amoy with a capital of $600,000 to develop deposits in this district, situate about 100 miles from Amoy.

MESSRS. SALE & FRAZAR, LTD.—This enterprising company will remove its headquarters to a new site opposite the Nippon Yusen Kaisha's Head Office in Tokyo. Their shipping office will remain in Yokohama, while the several departments for the sale of railway material, machinery, steel and metals, etc., will be located in the new building in Tokyo.

CHI YING CHOW SILVER DEPOSITS.—A native company with a capital of $50,000 has been organized under the style name of the Tung Yi Silver Mining Company, Ltd., for the purpose of developing these deposits.

TIBETAN GOLD MINES.—Reports from Siningfu are to the effect that the Tibetans have driven the miners away from the deposits at Tsahpali. Work has been stopped.

RIGO BAY PLACER DEPOSITS.—Mr. Bode, a well-known mining expert, returned last month from Riga Gulf where he has been making an extensive investigation of deposits there. He reports tests showing as high as 40 cents gold and will make a thorough investigation with more effective equipment. Most of the ground has been located. Riga Gulf is located on the opposite side of the range from Paracale.

FINANCIAL AND MISCELLANEOUS

NETHERLANDS INDIA DEFICIT.—The Dutch Budget for the colonies shows a deficit of 24,000,000 florins for 1910. This has resulted from provision for exceptional expenditure.

CHINESE DEFICIT.—The Board of Finance announces that the total estimated revenues will not exceed Tls. 90,000,000, while the expenditure will reach Tls. 125,000,000. Imperial sanction has been given to a memorial recommending the establishment of a national debt by the issue of premium bonds.

EXPORT DUTY ON MANCHURIAN COAL.—The China-Japan Agreement fixed the export duty on Fushun coal at 16 sen a ton so as to conform to the rate charged on Kaiping.

DROUGHT AND LOCUSTS IN SHANGTUNG.—Consul Gracey of Tsingtau reports that on account of the continued drought, the wheat crop will not return one-eighth of the regular product. Enormous swarms of locusts have also invaded South Shangtung and are destroying everything before them.

BURMA SUGAR REFINERY COMPANY.—This new company has been organized with a capital of $324,400 for the purpose of sugar growing and or engaging in the refining industry. The importation of sugar for the year 1908 amounted to 22,232 tons, while the area under cultivation in Burma was 13,452 acres producing 30,000 pounds of cane an acre. The Government is aiding the new project.

INVESTIGATE CHINESE BANKS.—The Viceroy of Nanking has directed the Taotai of Shanghai to investigate and report on the financial standing of all the Chinese banks in Shanghai.

Mitsui Interests Reorganize as Joint Stock Companies.—The Mitsui Bussan Kaisha and the Mitsui Bank have been reorganized as joint stock companies, each with a capital of yen 20,000,000. This new arrangement takes effect November 1st.

Encouraging Commerce with Tibet.—The Board of Agriculture, Industry and Commerce has issued instructions to the viceroys and governors to afford merchants going to Tibet every protection and to reduce the duties on goods taken with them at least 40%.

Philippine Sugar Shipments.—The shipments for September from Iloilo to the United States amounted to 19,827,054 kilos.

Philippine Postal Savings Deposits.—At the end of August the total deposits amounted to ₱1,459,049.97.

Burma Rubber Growing Industry.—The report for the year ending June, 1908, shows an area of over 11,000 acres under cultivation an increase of 32% compared with previous year.

Gold for Japan.—The s. s. *China* carried $1,000,000 in gold for Japan on her last trip outward.

Osaka Insurance.—The companies of this city have agreed to raise fire rates 20%.

Tobacco War in Korea and Manchuria.—The Japanese Monopoly Bureau is preparing to compete with the British American Tobacco Company by the establishment of a big factory at Seoul and another at Inkao.

Hawaii Sugar Production.—The estimates for the 10 months preceding August 1st show the production for that period to be 530,000 tons.

Artesian Wells and the Death Rate.—As a result of the boring of artesian wells in the provinces of the Philippines the death rate in the towns thus supplied has been reduced from 50% to 70%.

Rubber Soars.—A London dispatch received at Kuala Lumpur announced that No. 1 Plantation brought nine shillings the latter part of September.

Butu Kawan Rubber and Coconut Plantations.—This is another new company with a capital of £80,000 organized to acquire the Batu Kawan Estate in the Province of Wellesley, S. S., and to grow rubber, sugar and coconuts.

Malay States Plantation and Investment Company.—The prospectus of this company with a capital of $150,000 to acquire a thousand acres of jungle land is published.

Tsingtau Customs.—The customs income from this port rose from Tls. 72,000 in 1899 to more than Tls. 1,000,000 in 1909.

Philippine Forestry.—The virgin forest area in the Philippines comprises 40,000 square miles or about 25,000,000 acres with an estimated stand of at least 203,200,000,000 board feet of fine lumber.

Central Bank of Korea.—The total capital of this institution was oversubscribed when the lists closed on September 6th. There were but 69,600 shares allotted and the applications numbered 20,516,694 according to a Japanese exchange.

Commercial Bank at Ningpo.—This institution opened its doors for business on September 13 and many depositors were recorded the first day.

School of Engineering at Port Arthur.—The Kuantung Government has published regulations governing the establishment of this institution. It is the purpose of the projectors to provide courses in mechanical engineering, electric engineering and metallurgy, each to take four years to complete.

Tonkin Wood Mines.—The discovery of a buried forest of fine timber in a high state of preservation makes an unique and paying industry in Upper Tonkin. The wood is said to be imperishable.

Saigon Rice Export.—The estimated export of rice from Cochin-China this year is placed at 1,600,000 tons.

F. M. S. Rubber Export.—The amount of rubber exported from the F. M. S. during the first eight months of 1909 was 3,447,338 lbs. against 1,900,536 lbs. for the corresponding period of last year, an increase of 1,546,802 lbs.

Elphinstone Estate, Ltd.—Advices from Singapore are to the effect that this company has issued a prospectus, the capital being $550,000 to purchase and develop what is known as the Heawood Estate.

Taiching Bank in Mongolia.—Success in its operation of branches in Urga has induced the authorities to increase its operations by establishing several more branches in Mongolia and information is being secured as to the most desirable locations.

Japanese Second Treasury Debentures Redemption.—The Official Gazette publishes the announcement of the Minister of Finance that yen 20,000,000 of these debentures would be redeemed October 30th. This will leave a balance of yen 58,700,000 to be paid. The October payment will make in all yen 40,000,000 redeemed this year.

Ratanui Rubber Estate, Ltd.—The capital of this company is fixed at £35,000 and its purpose is to acquire the Ratanui Estate situate in Telok Anson, Perak, and to cultivate rubber.

Japan's Expenditure in Korea.—The annual expenditure to which Japan is pledged represents yen 25,000,000 annually.

China Industrial Bank at Kiaochow.—A branch office of this bank has been opened at Kiaochow.

Japan's Savings.—The deposits in the post office savings bank of Japan has reached the yen 100,000,000 mark.

Korean Trade.—The exports from Korea for the eight months of the present year amounted to yen 24,336,678 and the imports yen 9,979,248. This is a decrease of almost yen 6,000,000 in exports compared with the previous corresponding term.

Hongkong's American Trade.—The exports from the United States to Hongkong for the year ending June 30th amounted to $7,267,802, a falling off of $1,700,000.

Kroewoek Java Plantations, Ltd.—The prospectus of this company with a capital of £70,000 has been issued of which £42,500 has been privately subscribed. The balance is offered.

Japan's Rice Crop.—The unprecedented crop of 273,000,000 bushels is the report received from Japan for the present season.

Philippine Sugar Planters' Association.—This body convened at Bacolod, Negros, on October 15th for the purpose of discussing matters affecting the sugar industry in the Philippines.

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*LONDON, ENGLAND, METAL MARKET

**The following are (September 10) prices of metals:—

COPPER	£ s. d.		£ s. d.
*Tough cake and Ingot	61 10 0	..	62 10 0
*Best Selected	62 0 0	..	63 0 0
*Electrolytic	62 10 0	..	63 0 0
*Sheets and sheathing	72 0 0	..	—
*Flat bottoms	75 0 0	..	—
STANDARD †Cash	58 15 3	..	—
STANDARD †Three Months	59 12 6	..	—
*Copper tubes, seamless per lb.	0 0 8¼	..	—
*Lake	63 10 0	..	64 0 0

* Less 3½ per cent. † Net.

ALLOYS.			
Brass: Wire	0 0 6¾	..	—
,, Tubes (solid drawn)	0 0 6⅞	.	—
,, Sheets	0 0 6⅞	..	—

TIN.			
English ingots, f. o. b.	135 0 0	..	135 10 0
,, bars	136 0 0	..	136 10 0
,, refined	187 0 0	..	187 10 0
Straits... Cash	13[illegible] 17 6	..	—
Straits... Three months	13[illegible] 2 6	..	—
Australian spot	—	..	—
Banka (in Holland) Cash	136 18 9	..	—
Banka (in Holland) Three months	137 11 3	..	—

LEAD.			
Spanish or soft foreign	12 18 9	..	12 15 0
English pig, common	12 17 6	..	13 0 0
,, L. B.	13 5 0	..	—
,, sheet and bar lead	13 17 6	..	—
,, pipe	14 7 6	..	—
,, red	15 15 0	..	—
,, white	17 10 0	..	—
,, patent shot	15 15 0	..	—

SPELTER.			
Silesian ordinary brands	22 15 0	..	23 0 0
,, special brands	23 5 0	..	23 5 0
English Swansea	23 5 0	..	23 5 0
Sheet zinc	24 15 0	..	—

§ In our issue of August 28 these quotations were given as £23 5s. to £22 15s., they should have read £22 15s. to £23 5s.

ANTIMONY.			
Antimony	28 0 0	..	30 0 0
,, Crude	13 0 0	..	14 0 0
,, Ore (basis 50%)§	7 10 0	..	8 10 0

QUICKSILVER.			
Flasks, 75 lbs. warrants	8 5 0	..	—

MANGANESE.

Ore, c.i.f., U. K. ports.	Per unit.		Per unit.*
1st quality, 50 per cent. and upwards	0 0 9	..	—
2nd quality, 47 per cent. to 50 per cent	0 0 8	..	—
3rd quality, 40 per cent. to 47 per cent	0 0 7	..	—

* Unit corresponds to 1 per cent.

ALUMINIUM.	Per ton.		Per ton.
98-99 per cent	72 10 0	..	75 0 0

NICKEL.	Per ton.		Per ton.
98-99 per cent. guaranteed	170 0 0	..	175 0 0

PLATINUM.

Per oz. Troy, 99s. nominal and subject to negotiation.

**Mining Journal

HEMP STATISTICS, 30th SEPTEMBER, 1909.

(Courtesy of C. S. Nicholson, *Secretary, Manila Chamber of Commerce.)*

EXPORT OF HEMP, SEPTEMBER, 1909.

Date	Vessel	London	L'pool	Atlantic U.S.	Pacific East & California	Continent	Australia	Other Pts.	Total Bales
1909	Forward:—	174,120	94,449	389,257	81,408	39,901	11,837	23,573	814,545
Sept. 1	Keemun	....	....	....	2,300	....	....	....	2,300
" "	Carmarthenshire.	5,029	....	....	....	2,702	....	....	7,731
" "	Kaifong ...... Cebu	3,514	....	....	....	....	....	....	3,514
" 3	Yuensang	....	250	....	....	150	....	15	415
" 4	Zafiro	....	250	....	....	646	....	150	1,046
" 5	Lothian	....	....	22,275	....	....	....	....	22,275
" 7	Isla de Panay	....	300	....	....	50	....	....	350
" "	Nikko Maru	....	....	....	....	....	720	....	720
" 10	Loongsang	....	....	....	....	....	....	300	300
" 12	Henrick Ibsen	....	....	....	500	....	....	....	500
" 13	Prinz Waldermar.	....	....	....	....	....	600	....	600
" 16	Dakotah	....	....	....	4,055	....	....	....	4,055
" 17	Yuensang	250	....	....	....	237	....	100	587
" 18	Prinz Sigismund.	....	....	....	....	....	....	173	173
" "	Eastern	....	....	....	....	....	....	100	100
" 19	Zafiro	1,546	....	....	....	....	....	....	1,546
" 21	Atlas	....	....	21,730	....	....	....	....	21,730
" "	Tean	....	....	....	....	550	....	....	550
" 23	Teucer	....	2,300	....	....	....	....	....	2,300
" "	Siberia	....	....	28	700	....	....	....	728
" "	Suveric	....	....	....	12,237	....	....	....	12,237
" 25	Rubi	454	....	....	....	1,000	....	200	1,654
" "	Yawata Maru	....	....	....	....	....	....	123	123
" "	Loongsang	4,012	....	....	....	450	....	350	4,812
" 26	Montrose (Cebu).	....	....	25,258	....	....	....	....	25,258
" "	Taiyuan	....	....	....	....	....	480	....	480
" 28	Courtfield	1,800	2,431	....	....	750	....	....	4,981
" "	Teming	2,157	....	....	....	850	....	....	3,007
		192,882	99,980	458,548	101,200	47,286	13,637	25,084	938,617

FAR EASTERN STOCKS AND QUOTATIONS

Courtesy of Messrs. Kadoorie & Co., Hongkong, October, 1909.

STOCK.	WHEN ESTABLISHED	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	AT WORKING ACCOUNT	DATE	LAST DIVIDEND.	Approximate Yield per cent per annum at Present Quotation	CLOSING QUOTATIONS. (Oct. 15, 1909)
BANKS.											
Hongkong & Shanghai Banking Corporation	1865	$15,000,000	120,000	$125	$125	g £1,500,000 s $15,250,000 i $250,000	$2,001,819	30-6-09	Interim of £2 for account 1909, @ ex 1/9 ⅛ = $22.72	4	995 sales £91 10/-
National Bank of China, Ld.	1891	£699,475	10) 99,925	£7	£6	c £4,099 $300,000	$30,552	31-12-08	$2 (London 3/6) for 1903	....	$65 buyers
MARINE INSURANCES.											
Canton Insurance Office, Ld.	1881	$2,500,000	10,000	$250	$50	$1,560,000 j $232,757 u $411,990	Nil.	31-12-07	$14 for 1907	7½	$175 sellers
North China Insurance Co., Ld.	1863	£150,000	10,000	£15	£5	g £125,000 s Tls. 150,000 u Tls. 303,747 f Tls. 118,277	Tls. 160,512	30-6-08	Interim of 7/6 for % 1907	5½	Tls. 115
Union Ins. Society of Canton, Ld.	1867	$3,100,000	12,400	$250	$100	s $3,000,000 g £90,000 f $192,248 j £105,249 u $682,609	$2,464,901	31-12-08	Final of $17 making $47 for 1907, and interim of $30 for account 1908	5¾	$850 sellers
Yangtsze Ins. Association, Ld.	1862	$1,200,000	12,000	$100	$60	$1,000,000 j $294,405 f $199,234	$707,637	31-12-08	$12 and bonus $3 for 1907	7½	$232½
FIRE INSURANCES.											
China Fire Ins. Co., Ld.	1870	$2,000,000	20,000	$100	$20	$1,000,000 x $438,668 f $13,802	$375,314	31-12-08	$6 and bonus $2 for 1907	7	$114 buyers
Hongkong Fire Ins. Co., Ld.	1868	$2,000,000	8,000	$250	$50	$1,438,173	$368,711	31-12-08	$27 for 1907	8	$375 buyers
SHIPPING.											
China & Manila Steamship Co., Ld.	1882	$750,000	1) 30,000	$25	$25		Dr. $21,538	31-12-08	$1 for 1906	....	$8½ sellers
Douglas Steamship Co., Ld.	1883	$1,000,000	20,000	$50	$50	$264,638 i $99,067	Nil.	30-6-08	$2½ for year ending 30-6-08	7	$33
Hongkong, Canton & Macao Steamboat Co., Ld.	1865	$1,200,000	80,000	$15	$15	e $250,000 d. i. $617,500 f $119,267 $ 22,645	$21,170	30-6-09	Interim of $1½ for a/c 1909	7¾	$31¼ sellers
Indo-China Steam Navigation Co., Ld. (Preferred) Do. Do. (Deferred)	1882 m	£600,000	2) 60,000 2) 60,000	£5	£5	i £148,891	£15,162	31-12-08	6/- for 1907 on pref. shares only at ex. 1/9 11/16, $3.154	....	$60
"Shell" Transport & Trading Co., Ld.	1898	£ 2,000,000	2,000,000	£1	£1	£720,000 i £100,000	£192,994	31-12-08	Final of 2/- for 1908 & int. of 1/- for a/c 1909	....	73/- buyers
"Star" Ferry Co., Ld.	1898 1900	$200,000	10,000 10,000	$10 $10	$10 $5	$65,000 i $48,980	$31,21	30-4-09	$1.00 50 cts. for year ended 30-4-09	4 3½	$26 $15
REFINERIES.											
China Sugar Refining Co., Ld.	1878	$2,000,000	20,000	$100	$100	e $350,000 r $56,848	Dr. $5858	31-12-08	$5 for year ending 31-12-08	3½	$145 buyers
Luzon Sugar Refining Co., Ld.	1882	$700,000	7,000	$100	$100	none	Dr. $135,893	31-12-08	$3 for 1897	....	$23
Perak Sugar Cultivation Co., Ld.	—	Tls. 350,000	7,000	Tls. 50	Tls. 50	Tls. 100,000	Tls. 9,173	31-8-07	Tls. 3½ for year ending 31-8-08	....	Tls. 332½ buyers
MINING.											
Chinese Engineering & Mining Co., Ld.	1901	£1,000,000	1,000,000	£1	£1	d £175,000 h £12,289	£11,556	28-2-07	Int. of 1/6 for year ending 29-2-09 (Coupon No. 12)	7	Tls. 19½ buyers
Raub Australian Gold Mining Co., Ld	1892	£200,000	150,000 50,000	£1 £1	18-10 £1	£4,873	Dr. £2,191	31-3-08	No. 12 of 1/- = 48 cents	....	$8 sellers
DOCKS, WHARVES AND GODOWNS.											
Fenwick (Geo.), & Co., Ld.	1889	$450,000	s 18,000	$25	$25	$42,986	Dr $7,421	31-12-08	$1½ for year ending 31-12-06	....	$12
Hongkong & Kowloon Wharf & Godown Co., Ld.	1886	$3,000,000	60,000	$50	$50	$550,000 t $26,806 i $40,000	$30,102	31-12-08	Final of $1½ making $3½ for 1907	....	$63 sa. & b.
Hongkong & Whampoa Dock Co., Ld.	1866	$2,500,000	50,000	$50	$50	i $88,442 v $221,000	$345,162	30-6-09	Interim of $1½ for account 1909	12½	$55 sellers
Shanghai Dock & Engin'g Co., Ld.	1906	Tls. 5,570,000	13) 55,700	Tls. 100	Tls. 100	Tls. 1,000,000	Tls. 6,261	30-4-09	Final of Tls. 2½ for year ending 30-4-1909	6¼	Tls. 75½ buyers
Shanghai & Hongkew Wharf Co., Ld.	1902	Tls. 3,600,000	36,000	Tls. 100	Tls. 100	b Tls. 697,257 r Tls. 50,000 e Tls. 125,000	Tls. 6,261	31-12-08	Final of Tls. 6 making Tls. 10 for 1908	6¼	Tls. 140 sellers
LANDS, HOTELS AND BUILDINGS.											
Anglo-French Land Investment Co., Ld.	1906	Tls. 2,500,000	3) 25,000	Tls. 100	Tls. 100	Tls. 35,000	Tls. 4,314	29-2-09	Tls. 6 for year ending 29-2-09	5¾	Tls. 105 buyers
Central Stores, Ld.	....	$751,845	16) 50,123	$15	$15	n. $1,000	$24,641	31-12-08	$1.20 on old & 60 cts. on first new issue	....	$17½ buyers
Hongkong Hotel Co., Ld.	1866	$600,000 $400,000	12,000 8,000	$50 $50	$50 $25	$648,975 r $140	$19,272	30-6-09	Interim of $2,40 old and 40 cents new for a/c 1909	....	$72½ $43½ new i
Hongkong Land Investment & Agency Co., Ld.	1889	$5,000,000	50,000	$100	$100	e $250,000	$26,475	31-12-08	Interim of Tls. 3½ for a/c 1909	6½	$104 sellers
Humphreys' Estate & Finance Co., Ld.	1887	$1,500,000	150,000	$10	$10	i $222,172 20) $43,261	$5,486	31-12-08	60 cents for 1908	6½	$9½ sellers
Kowloon Land & Bldg. Co., Ld.	1889	$300,000	6,000	$50	$30	none	$278	31-12-08	$1½ for 1908	5	$30 sellers
Shanghai Land Investment Co., Ld.	1888	Tls. 3,900,000	78,000	Tls. 50	Tls. 50	Tls. 1,523,045 e Tls. 300,000	Tls. 142,404	31-12-08	Interim of Tls. 3 for 1909	6¾	Tls. 120 sellers
West Point Bldg. Co., Ld	1889	$625,000	12,500	$50	$50	none	$1,968	31-10-08	Interim of $2 for a/c 1909	8¾	$43 sellers
COTTON MILLS.											
Ewo Cotton Spinning & Weaving Co., Ld.	1895	Tls. 1,000,000	5) 20,000	Tls. 50	Tls. 50	Tls. 150,000 Tls. 45,939	Tls. 8,820	31-7-08	Tls. 5 for year ended 31-10-08	3½	Tls. 143½ buyers
Hongkong Cotton Spinning, Weaving & Dyeing Co., Ld.	1901	$1,250,000	125,000	$10	$10	e $20,000	$9,553	30-9-08	50 cents for year ending 31-7-08	6	$6½ sales

FAR EASTERN STOCKS AND QUOTATIONS—(Continued.)

STOCK.	When Established	CAPITAL.	No. of Shares.	Value.	Paid Up.	RESERVE	AT WORKING ACCOUNT.	Date.	LAST DIVIDEND.	Approximate Yield per cent. per annum at Present Quotation.	CLOSING QUOTATIONS
International Cotton Manufacturing Co., Ld.	1895	Tls. 750,000	6) 10,000	Tls. 75	Tls. 75	Tls. 175,000	Tls. 8,372	31-12-08	Tls. 6 for year end. 30-9-06 (8%).	....	Tls. 87
Laou-kung-mow Cotton Spinning & Weaving Co., Ld.	1895	Tls. 800,000	8,000	Tls. 100	Tls. 100	none	Tls. 4,829	31-12-08	Tls. 4 for 1908	....	Tls. 111
Soy Chee Cotton Spinning Co., Ld	1895	Tls. 1,000,000	2,000	Tls. 500	Tls. 500	*l* Tls. 31,172	Tls. 15,911		Tls. 50 for 1906	....	Tls. 460
MISCELLANEOUS.											
Bell's Asbestos Eastern Agency, Ld.	1895	£5,377.10s	11) 8,604	12/6	12/6	£1,500	£682	31-12-08	15% for 1908	....	$10
China-Borneo Co., Ld.	1903	$720,000	8) 60,000	$12	$12	$40,000	Nil.	31-12-08	$1.20 for 1908	9	$13 sellers
China Light & Power Co., Ld. Do. do. Special Shares	1901 1907	$550,000	50,000 17) 50,000	$10 $1	$10 $1	none	$61,138	28-2-07	60 cents for year ending 28-2-06	....	$6½
China Provident Loan & Mortgage Co., Ld.	1898	*a* $1,250,000	7) 125,000	$10	$10	$100,000	$3,407	31-12-08	80 cents for 1908	8½	$9½ sales
Dairy Farm Co., Ld.	1896	$300,000	40,000	$7½	$6	*l* $10,000 $8,000	$48	31-7-08	$1.30 for year ending 31-7-08	7¾	$17¾ buyers
Green Island Cement Co., Ld.	1889	$4,000,000	400,000	$10	$10	$13,000	$3,756	31-12-08	Final of 50 cts. making 90 cts. for 1908	10	$8 sellers
H. Price & Co., Ld.	1907	$120,000	19) 15,000	$10	$10	$5,000	$670	31-12-08	80 cents for year ending 31-12-08	8	$12
Hongkong Electric Co., Ld.	1889	$600,000	60,000	$10	$10	none	$5,195	29-2-09	$1.00 and bonus 20 cents for year ending 29-2-09	6	$20
Hongkong Ice Co., Ld.	1881	$125,000	5,000	$25	$25	*k* $150,000	$7,616	31-12-08	Interim of $2 for a/c 1909	10	$182½ sellers
Hongkong Rope Manufacturing Co., Ld.	1883	$600,000	$60,000	$10	$10	$20,000	$8,790	31-12-08	Interim of $1 for a/c 1909	8½	$23
Maatschappij tot Mijn-, Bosch- en Landbouwexploitatie in Langkat	1902	Gs. 2,500,000	25,000	Glds. 100	Glds. 100	Tls. 547,500 *i* Tls. 63,914 21 Tls. 547,500	Tls. 316,682	31-10-08	Third quarterly dividend of Tls. 12½ for % 1909	4	Tls. 830 sellers
Peak Tramways Co., Ld. Do. (New)	1907	$750,000	25,000 50,000	$10 $10	$10 $1	$20,000	$2,204	30-4-09	80 cents on fully paid shares & 8 cents on $1 paid shares for year ending 30-4-09	6 3	$13½ $1.30
Philippine Co., Ld.	1904	$750,000	75,000	$10	$10	none	Ps. 18,640	31-12-08	None	....	$9 buyers
Robinson Piano Co., Ltd.	1900	$200,000	22) 4,000	$50	$50	$5,000	$61,138	31-8-08	6% for ½ year ending 30.9.07	....	$50
Shanghai-Sumatra Tobacco Co., Ld.	1902	Tls. 600,000	9) 30,000	Tls. 20	Tls. 20	Tls. 24,820 *w* Tls. 75,000	Tls. 5,250	31-10-08	Final of Tls. 5 making Tls. 8 for 1908	4¾	Tls. 107 sales
South China Morning Post, Ld.	1903	$150,000	6,000	$25	$25	none	*Dr.* $56,602	31-8-08	None	....	$23½ buyers
Steam Laundry Co., Ld.	1902	$100,000	20,000	$5	$5	none	$236	31-5-08	40 cents for year ending 30-5-08	7	$5½
Union Waterboat Co., Ltd.	1905	$500,000	15) 50,000	$10	$10	none	$172	31-12-08	60 cents for year-end. 31-12-1908	5	$10¾ sellers
United Asbestos Oriental Agency, Ld.	1896	$100,000	10,000	$10	$4	$46,000	$342	31-5-09	60 cents per ordinary share for year ending 31-5-09	6½	$12½ buyers
Watson (A. S.) & Co., Ld.	1886	$900,000	90,000	$10	$10	$300,000 *e* $25,000	$2,613	31-12-08	Final of 30 cents making 60 cents for 1908	6½	$8 sellers
Weismann Limited	1904	$17,500	175	$100	$100	$6,700	$13	31-7-07	10 per cent for year endg. 31.7.07.	....	$150
William Powell, Ld.	1901	$105,000	15,000	$7	$7	none	$782	30-6-09	Final of 30 cents making 80 cents for year ending June 30th 1906	....	$4 sellers
RUBBERS											
Anglo-Malay Rubber Co., Ltd.	1905	£150,000	1,500,000	2/-	2/-	....	....	....	Interim of 12½% for a/c 1909	....	14/6 buyers
Balgownie Rubber Estate, Ltd.	1905 ††	$200,000	‡‡ 20,000 ††	$10 ††	$10	$7,400	$11,205	31-3-09	25% for year ending 31-3-09	....	$71 s. [S'pore].
Castlefield Rub. Ld., [fully pd.]	1906	£35,000	27) 32,650	£1	£1	none	....		....	....	60/- sellers
Damansara (Selangor) Rub Co.	1906	£110,000	25 110,000	£1	£1	nil.	£2,220	31-12-08	Final 9% making 12% for 1908	....	82/6 buyers
Golconda Malay Rubber Co.	1907	£80,000	26 80,000	£1	£1	nil.	nil.	....	....	....	60/- sellers
Highland & Lnd. Para R. Co. Do. Do. [fully paid] Do. Do. [partly paid]	1906	£310,000	=181,454 123,546	£1 £1	£1 15/-	£8,784	....	....	15% for year ending 31-12-09	....	67/6 sellers Nominal
Kamuning (Perak) Rb. & Tin Co. do do A Shares do do B Shares	1909	£200,000	950,000 105,000	2/- £1	1/- £1	nil.	nil.	....	....	....	4/- sellers
Kuala Lumpur Rubber Co., Ltd.	1896	£180,000	180,000	£1	£1					....	Nominal.
Linggi Plantations, Ltd. (ord.) Do. Do. (7% pref.)	1905 Reconst 1905	£100,000	+900,000 10,000	2/- £1	2/- £1	.... £4,000	1,820	....	.... 3% for year ending 30-6-08	....	71/- buyers 24/- buyers
Ragalla Rubber Co., Ltd. (ord.) Do. Do. (8% pref.)	1906 ††	$250,000	22,500 †† 2,500 ††	$10 †† $10 ††	$10 $10	....	....	....	Interim of 40%=9d for a/c 1909. 7% for year 1908	....	Nominal $29 b. S'pore Nominal
Ledbury Rubber Estates Ltd. Do. Do. (contrib.)	1908	£125,000	§§ 60,000 40,080	£1 £1	£1 7/6	....	....	....	....	....	52/6 35/6 sales
Sagga Rubber Co. Ld.	1903	£200,000	24) 20,000	£1	£1	nil.	nil.		....	....	100/- sellers
Sandycroft Rubber Co.	1904	$100,000	1,000	$100	$100	$20,000	$1,275	31.1.08	Interim of 30% for 1909	....	$710 buyers
Sekong Rubber Co., Ld	1908	£80,000	27) 80,000	£1	12/6	nil.	nil.	....	....	....	20/- buyers
Shelford Rubber State Ld.	1906	£65,000	65,000	£1	£1	nil.	£836	31.12.08	3% for 1908	....	36 sellers
Singapore & Johore Rb. Co., Ld.	1903	$250,000	2,500	$100	$100	nil.	nil.	....	....	....	$325 sellers
Sungei Choh. Rb. State Co., Ld.	1907	£45,000	45,000	£1	15/-	nil.	nil.	....	....	....	41/- buyers
Sungei Kapar Rubber Co.	1906	£110,000	23) 110,000	£1	£1	nil.	£3,448	31.12.98	....	—	70/-

LOANS AND DEBENTURES.	AGENTS' FOR THE LOAN.	AMOUNT OF LOAN.	PAR VALUE.	OUTSTANDING BONDS.	WHEN PAYABLE.	CLOSING QUOTATIONS.
China Government, 7 per cent. Silver Loan 1886 E.	Hongkong & Shanghai Banking Corporation.	Tls. 767,200	Tls. 250	1914	Mar. 31st and Sept. 30th each year until Mar. 31st, 1917	par. (Plus interest)
Hongkong Hotel Company, Ltd., 6 per cent. Mortgage Debentures of 1899 ‡	Hongkong & Shanghai Banking Corporation.	$750,000	$500	§ all	Half yearly, June 30th and December 31st	par
Shanghai & Hongkew Wharf Company, Ltd., 6 per cent. Debentures of 1902	Hongkong & Shanghai Banking Corporation.	Tls. 543,900	Tls. 100	....	Half yearly, June 30th and December 31st	Tls. 103½
Astor House Hotel Company, Ltd., 8 per cent. Debentures of 1903	Hongkong & Shanghai Banking Corporation.	Tls. 500,000	Tls. 100	....	Half yearly, January 1st and July 1st	102½
Chinese Engineering & Mining Co., Ltd., 6 per cent. Debentures of 1903 †	....	£500,000	¶	£431,960	Half yearly, June 30th and December 31st	par.
International Cotton Manufacturing Co., Ltd. 7% Debentures of 1901	Russo Chinese Bank	Tls. 500,000	Tls. 100	‖	Half yearly, March 31st and Sept. 30th	Tls. 97½.

a Authorized capital $2,000,000.
b Building Reserve Account.
c Capital Reserve Fund.
d Depreciation Fund.
e Equalization of Dividend Fund.
f Exchange and Investment Fluctuation Account.
g Gold Reserve Fund
h Exchange Reserve Account.
i Insurance Fund.
j Reinsurance Fund.
k Contingencies Account.
l Legal Reserve Fund.
m Authorized Capital
n Sinking Fund.
o Raw Sugar Reserve Account.
p Premium on New Issue.
q Boiler Repairs and Renewals Account
r Repairs and Renewals Account.
s Silver Reserve Fund.
t Depreciation and Repair Account
u Underwriting Suspense Account.
v Special account
w Special Works Fund.
x Extra Reserve Fund.
y 72,560 owned by the Company.
z 7,200 shares unissued.
1 4,000 shares unissued.
2 First issue of 60,000 of which 10,411 unallotted.
3 5,000 shares unissued.
4 4,480 shares unissued.
5 5,000 shares unallotted.
6 1,616 shares unallotted.
7 5,000 shares unissued.
8 14,000 shares unissued.
9 17,000 shares unissued.
10 40,453 shares actually issued.
11 7,688 shares actually issued.
12 4,200 shares unissued.
13 500 shares unissued.
14 399 shares unissued.
15 22,277 shares unissued.
16 10,000 shares unissued.
17 Special shares are entitled to half of the profits.
18 Capital contributed by Chinese Government Kuping Tls. 5,000,000.
19 12,000 issued only.
20 Typhoon and Floods Insurance Fund
21 Special Cash Reserve.
22 1000 shares unissued.
23 10,000 shares unissued.
24 4595 part paid shares.
25 7,500 shares unissued.
26 10,000 shares unissued.
27 2,350 shares unissued.
Based on last year's dividend.
** Based on present dividend.
‖ Only Tls. 134,000 taken up.
§ 216 held by the Company.
¶ In certificates of £20 and £100.
‡ Redeemable in 10 years, or at option of Company, the Company giving 6 months notice.
† Redeemable at par at rate of £10,000 per annum from 31st December 1903 to 31st December 95.
*** Redeemable at par on 30th June, 1915.
Dr. Deficit.
†† Singapore dollars.
‡‡ 4,880 shares unissued.
× 16,756 shares unissued.
§§ 25,000 shares unissued.
— 4140 shares unissued.

ADDITIONAL SHANGHAI SHARE QUOTATIONS

STOCK	CLOSING QUOTATIONS	HIGHEST AND LOWEST PRICES DURING THE WEEK	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	LAST DIVIDEND	WHEN PAID
Oriental Consolidated Mining Co., Ltd	27s. 6d.		G. $5,000,000	500,000	G. $10	G. $10	none	Interim of Gold .50 for 1909	June 30, 1909
Vulcan Iron Works, Limited	Tls. 400		Tls. 500,000	1,000	Tls. 500	Tls. 500	—	Tls. 50 for year ended 31.8.06	Nov. 1, 1906
Yangtsze Wharf & Godown Co., Limited	Tls. 125 nominal		Tls. 250,000	2,500	Tls. 100	Tls. 100	Tls. 50,000	Tls. 15 for 1908	April 1, 1909
Wei-hai-wei Land & Building Co., Limited	Tls. 10 nominal		Tls. 91,850	3,674	Tls. 25	Tls. 25	—	—	—
Union Estate & Investment Co., Limited	Y. 105 sales		Y. 1,000,000	10,000	Y. 100	Y. 100	—	First year	—
Hotel des Colonies Company, Limited	Tls. 9 sellers		Tls. 112,500	9,000	Tls. 12½	Tls. 12½	Tls. 29,783	6% for 1907	May 29, 1908
Kalee, Limited	$100 nominal		$400,000	4,000	$100	$100	—	2% for 1908	July 3, 1909
Anglo-German Brewing Co., Limited	$85 buyers		$100,000	4,000	$100	$100	none	$7 for 1907	Mar. 12, 1908
Butler Tile Works, Limited	Tls. 50 nominal		Tls. 60,000	1,200	Tls. 50	Tls. 50	—	Tls. 3 for year ending 31.3.09	June 8, 1909
Major Bros., Limited	Tls. 40 sellers		Tls. 300,000	6,000	Tls. 50	Tls. 50	—	—	—
Oriental Ice Company, Limited	Tls. 50		Tls. 130,000	2,600	Tls. 50	Tls. 50	—	First year	—
Scharffs Oil and Bone Mills, Ltd	Tls. 50		Tls. 200,000	4,000	Tls. 50	Tls. 50	—	First year	—
Shanghai Ice Company, Limited	Tls. 13 sales		Tls. 200,000	8,000	Tls. 25		—	3% for 1907	Mar. 14, 1908
Shanghai Oil Co., Limited	Tls. 25		Tls 175,000	7,000	Tls. 25	Tls. 25	—	First year	—
Campbell, Moore & Co., Limited	$10 buyers		$12,000	1,200	$10	$10	$9,000	$3 for 1905	Apr. 2, 1906
Dunning & Company, Limited	$50 sellers		$100,000	2,000	$50	$50	—	$5 year ending 28.2.08	Apr. 15, 1908
J. Llewellyn & Co., Limited	$50 buyers		$72,000	1,200	$60	$60	—	7.20 for 1908	Apr. 1, 1909
Lane, Crawford & Company	$137½ sales		$250,000	2,500	$100	$100	—	Final of 3% making 6% for 1908	June 8, 1909
Mondon (E. L.) Limited	Tls. 6 buyers	137½	Tls. 225,000	9,000	Tls. 25	Tls. 25	none	—	—
S. Moutrie & Company, Limited	$48 sellers		$250,000	5,000	$50	$50	—	$4 for year ended March 31, 1908	June 18, 1908
Weeks & Company, Limited	$26½ buyers		$400,000	20,000	$20	$20	$40,000	Final of $1.20 making $2 for 1908	May 20, 1909
Dominion Rubber Co., Limited	Tls. 4		Tls. 225,000	22,500	Tls. 10	Tls. 4	—	First year	—
Kalumpong Rubber Co., Ltd	Tls. 42 sellers		Tls. 700,000	14,000	Tls. 50	Tls. 50	** Tls. 11,844.48	6% for 1907	Nov. 29, 1908
Senawang Rubber Estates Company, Limited	Tls. 100		Tls. 250,000	2,500	Tls. 100	Tls. 100	—	—	—
Senawang Rubber Estates Company, New	Tls. 75				Tls. 100	Tls. 75			
Tebong Rubber and Tapioca Estate, Limited	20s.		£76,000	76,000	£1	£1	—	—	—
Eastern Fibre Co., Limited	Tls. 10 nominal		Tls. 300,000	30,000	Tls. 10	Tls. 10	—	1/ ex. 2/6=Tls. 0.40 for 1908	August 5, 1909
Shanghai Mercury, Limited	Tls. 50 buyers		Tls. 105,500	2,100	Tls. 50	Tls. 50	—	Final of 6% making 10% for year ended 30.4.08	June 29, 1908
Shanghai Mutual Telephone Co., Limited	Tls. 62 buyers		Tls. 675,000	13,500	Tls. 50	Tls. 50	—	Tls. 3 for 1907	June 28, 1908
China Export, Import & Lumber Company, Limited	Tls. 78 nominal		Tls. 350,000	500	Tls. 100	Tls. 50	—	10 p. c. for year ending 29.2.08	May 1, 1908
China Printing Co., Limited	Tls. 42½		Tls. 750,000	1,500	Tls. 50	Tls. 50	—	7% 1908	Apr. 18, 1909
Dallas Horse Repository Co., Ltd.	Tls. 25 nominal		Tls. 250,000	5,000	Tls. 50	Tls. 50	—	—	—
Hirano Mineral Water Co., Ltd.	Y. 15 sales		Y. 125,000	5,000	Y. 25	Y. 25	—	10%=yen 2½ for year ending 30th Sept. 08 Y. 1.20 for year ended Feb. 29	Apr. 26, 1909
E. E. Porter & Co., Limited	$50		$100,000	2,000	$50	$50	—	$6 for 1907	Apr. 22, 1908
Shanghai Electric & Asbestos Company, Limited	$20 sales		$125,000	5,000	$25	$25	—	8% for year ended Feb. 28, 09	June 21, 1909
Shanghai Electric Construction Company, Limited	£11 buyers	£11	£300,000	30,000	£10	£10	—	First year	—

DEBENTURES

LOANS		PRICE—PLUS ACCRUED INTEREST	AMOUNT OF LOAN	OUTSTANDING	NOMINAL VALUE	RATE OF INTEREST	WHEN PAYABLE
Shanghai Municipal Debentures	1892	Tls. 92½	Tls. 50,000	Tls. 45,400	Tls. 100	5 %	June & Dec.
do	1893	,, 96	,, 125,000	" 32,000	" 100	5½ ,,	Do
do	1894	,, 104½	,, 105,000	" 60,000	" 100	6 ,,	Do
do	1895	,, 92½	,, 115,000	" 32,600	" 100	5 ,,	Do
do	1896	,, 92½	,, 140,000	" 131,800	" 100	5 ,,	Do
do	1897	,, 92½	,, 268,800	" 268,400	" 100	5 ,,	Do
do	1898	,, 104½	,, 300,000	" 60,000	" 100	6 ,,	Do
do	1900	,, 96	,, 33,900	" 31,700	" 100	5½ ,,	Do
do	1901	,, 104½	,, 250,000	" 200,000	" 100	6 ,,	Do
do	1902	,, 104½	,, 150,000	" 150,000	" 100	6 ,,	Do
do	1903	,, 104½	,, 490,500	" 490,500	" 100	6 ,,	Do
do	1904	,, 104½	,, 214,500	" 214,500	" 100	6 ,,	Do
do	1905	,, 104½	,, 320,000	" 320,000	" 100	6 ,,	Do
do	1907	,, 104½	,, 250,000	" 250,000	" 100	6 ,,	Do
Chinese Imperial Government Loan	1886 E	,, 250	,, 767,200	" 354,400	" 250	7 ,,	Mar. & Sept
Shanghai Land Investment Co., Debentures	1890	,, 102	,, 250,000	" 250,000	" 100	6 ,,	May & Nov.
do	1892	,, 96	,, 250,000	" 250,000	" 100	5½ ,,	June & Dec.
do	1894	,, 101	,, 250,000	" 250,000	" 100	6 ,,	Mar. & Sept.
do	1896	,, 92½	,, 250,000	" 250,000	" 100	5 ,,	June & Dec.
do	1900	,, 102	,, 250,000	" 250,000	" 100	6 ,,	April & Oct.
do	1901	,, 102	,, 250,000	" 250,000	" 100	6 ,,	June & Dec.
do	1901	,, 96	,, 100,000	" 100,000	" 100	5 ,,	May & Nov.
do	1902	,, 102	,, 400,009	" 400,000	" 100	6 ,,	June & Dec.
do	1905	,, 102	,, 250,000	" 250,000	" 100	6 ,,	Do
Shanghai Waterworks Co., Debentures	1894	,, 103	,, 100,000	" 100,000	" 100	6 ,,	Mar. & Sept
do	1896	,, 92½	,, 100,000	" 100,000	" 100	5 ,,	June & Dec.
do	1899	,, 103	,, 50,000	" 50,000	" 100	6 ,,	Do
do	1900	,, 103	,, 100,000	" 100,000	" 100	6 ,,	Mar. & Sept.
do	1902	,, 103	,, 100,000	" 100,000	" 100	6 ,,	Do
do	1903	,, 103	,, 100,000	" 100 000	" 100	6 ,,	June & Dec.
Perak Sugar Cultivation Co., Debentures	1902	,, 101	,, 200,000	" 200,000	" 100	7 ,,	April & Oct.
Shanghai Gas Co., Debentures	1897	,, 92½	,, 100,000	" 100,000	" 100	5 ,,	Do
do	1899	,, 102	,, 1,000,000	" 100,000	" 100	6 ,,	May & Nov.
do	1900	,, 102	,, 2,000,000	" 200,000	" 100	6 ,,	June & Dec.
Shanghai and Hongkew Wharf Co., Debentures	1902	,, 100½	,, 799,800	" 799,800	" 100	6 ,,	Do
Astor House Co., Debentures	1905	,, 103	,, 500,000	" 500,000	" 100	7 ,,	Do
British Municipal Council, Hankow	1901	Sh. ,, 105	H'kow Tls 100,000	H'kow Tls 100 000	" 100	7 ,,	June & Dec.
Shanghai Club Debentures	1907	,, 96	Tls. 170,000	Tls. 170,000	" 100	6 ,,	Do
Country Club Debentures		,, 97	,, 139,000	" 139,000	" 100	6 ,,	Do
do	1907	,, 97	,, 92,000	" 92,000	" 100	6 ,,	Do
Lane Crawford & Co., Debentures	1907	,, 100	,, 110,000	" 110,000	" 100	7 ,,	Mar. & Sept.
Anglo-French Land Debentures	1908	,, 102½	,, 250,000	" 250,000	" 100	6 ,,	June & Dec.

SINGAPORE SHARE QUOTATIONS

(Courtesy Messrs. Fraser & Co., Brokers, Singapore, September, 1909)

Date of Formation	Capital	Capital paid up	No. of Shares Issued	Issue Value	Paid up	Reserve	Last Dividend	Name	Buyers.	Sellers.
								MINING		
1903	$300,000	300,000	30,000	10	10		12% for year ending 31-3-09	Belat Tin Mining Co., Ltd.	5.75	6.00
1907	$300,000	225,000	22,500v	10	10			Bruang Ltd.	5.75	6.00
1901	$600,000	600,000	60,000	10	10	25,000	10% for year ending 30-4-08	Bruseh Hydraulic Tin Mining Co., Ltd.	8.00	8.25
1903	£500,000	444,769	444,769a	1	1			Duff Development Co., Ltd.	5.55	5.75
1907	$400,000	375,000	37,500b	10	10			Kanaboi, Ltd.	1.25	1.50
1901	£60,000	60,000	60,000	1	1		2-6 interim for 1908.	Kinta Tin Mines, Ltd.	11.00	11.25
1906	£100,000	100,000	100,000	1	1			Kledang Tin Mining Co., Ltd.	1.50	1.75
1905	$150,000	99,000	9,900c	10	10	6,485.68	35% for year ending 31-12-07	Kuantan Tin Mining Co., Ltd.	3.50	3.75
1906	£120,000	120,000	120,000	1	1			Lahat Mines Ltd.	10.25	10.50
1906	£30,000	30,000	30,000	1	1			Malaya and Siam Corporation, Ltd.	....	5/-
1906	$450,000	450,000	45,000	10	10			Malacca Tin Dredging Co., Ltd.	2.25	2.50
1906	£250,000	179,500	500,000e	5/-	5/-			Pahang Consolidated Co., Ltd.	10/-	10/6
1907	£100,000	80,000	80,000f*	1	1			Pengkalen, Ltd.	7.50	7.75
1904	£120,000	100,000	100,000d	1	1	6,000	45% for year ending 30-6-07	Pusing Lama Tin Mines, Ltd.	3.50	4.00
1907	$450,000	300,000	30,000d*	10	10			Rahman Hydraulic Tin, Ltd.	....	6.00
1905	£27,000	27,000	27,000	1	1		1/- interim during 1907	Rambutan, Ltd.	7.75	8.00
1892	£200,000	191,250	50,000	1	1	4,873	1/- paid January 1901	Raub Aust. Gold Ming. Co., Ltd.	6.75	7.00
			150,000	1	18/10		1/- " " "	" " " *Contributory*	6.25	6.50
1905	£40,000	40,000	40,000	1	1			Redhills Tin Mining Co., Ltd.	1.50	2.00
1900	$110,000	110,000	22,000	5	5		3% for year ending 22-1-09	Royal Johore Tin Mining Co., Ltd	1.25	1.50
1907	$550,000	500,000	50,000l*	10	10			Salak South, Ltd.	5.10	5.25
1907	£80,000	80,000	80,000	1	1			Sempam Tin Mines, Ltd.	2.50	3.25
1906	$850,000	850,000	85,000	10	10	25,000	5% interim for 1909	Serendah Hydraulic Tin Ming. Co., Ltd.	7.50	8.00
1899	$230,000	230,000	23,000	10	10		3% for ½ year ending 31-12-08	Sipiau Tin Co., Ltd.	....	2.75
1909	$200,000	$150,000	15,000	10	10			Sungei Gau Tin Mining Co., Ltd.	7.50	8.00
1907	£90,000	70,000	70,000w	1	1		1/6 interim for 1909	Tekka, Limited	14.25	14.75
1906	£150,000	150,000	150,000	1	1			Tongkah Harbour Tin Dredging Co., Ltd.	15.50	16.00
1902	£160,000	160,000	160,000	1	1		5/- during 1907.	Tronoh Mines, Ltd.	10.25	10.50
								RUBBER		
1909	$120,000	105,000	105,000e‡	1	1			Alor Gajah Rubber Estate, Ltd	1.50	2.00
1905	£150,000	150,000	1,500,000	2/-	2/-		12½% interim during 1909	Anglo-Malay Rub. Co., Ltd.	15/-	15/6
1905	$200,000	151,200	15,120c*	10	10	7,400	25% for year ending 31-3-09	Balgownie Rub. Estate, Ltd.	59.00	60.00
1904	£30,000	20,187 10/-	19,000	1	1		10% for year ending 31-12-09	Batu Caves Rub. Co., Ltd.	5.7.6	5.11.0
			4,750f	1	5/-					
1906	£80,000	70,000	70,000s*	1	1		5% for year ending 31-3-09.	Batu Tiga (Selangor) Rubber Co., Ltd.	1.18.0	2.0.0
1909	£100,000	66,135	57,816	1	1			Bukit Kajang Rubber Estates, Ltd.	2.4.0	2.5.0
			22,184x*	1	7/6			" " " *Contributory*	1.3.6	1.4.6
1907	£30,000	22,500	18,000k*	1	1			Bukit Lintang Rubber Estates, Ltd.	2.8.6	2.12.6
			6,000	1	15/-			" " " *Contributory*	2.2.6	2.5.0
1903	£70,000	66,700	66,700g	1	1	2,000	55% for year ending 31-12-08	Bukit Rajah Rubber Co., Ltd.	9.0.0	9.5.0
1906	£35,000	32,650	32,650c‡	1	1			Castlefield (K.) R. Estate, Ltd.	2.16.0	2.17.6
1909	£225,000	175,000	1,750,000d‡	2/-	2/1-			Chersonese (F.M.S.) Estates, Ltd	2/6	3/-
1904	£16,000	16,000	10,000	1	1		25% interim for 1909.	Cicely Rubber Estates Co., Ltd.	10.10.0	10.12.6
			6,000	1	1		26½% interim for 1909.	" " " " 5% *Pref.*	10.12.6	10.15.0
1905	£75,000	58,507	55,007i	1	1	1,000	20% interim for 1909	Consolidated Malay Rub. Estates, Ltd.	6.11.6	6.12.6
			7,000	1	10/-					
1906	£110,000	102,500	102,500r*	1	1		12% for year ending 31-12-08	Damansara (Selangor) Rubber Co., Ltd.	4.6.0	4.8.6
1909	£45,000	37,828	37,828z‡	1	1			Edinburgh Rub. Estates, (Selangor) Ld.	2.0.0	2.1.0
1909	$550,000	475,000	475,000f‡	1	1			Elphinstone Estates, Ltd	2.00	3.00
1907	£80,000	70,000	70,000y*	1	1			Golconda Rubber Co., Ltd.	2.10.0	2.12.6
1906	$680,000	632,000	28,000	17	17			Hevea Rubber Planting Co. Ltd	15.00	16.00
			12,000	17	13			" " " " *Contributory*	11.00	12.00
1906	£310,000	290,416 10/-	181,454j	1	1	8,784	7½% interim for 1909	Highlands & Lowds. Para Rub. Co., Ltd.	3.11.0	3.12.6
			123,546	1	17/6		" " " " "	" " " " *Contributory*	3.8.0	3.10.0
1904	£50,000	30,000	30,000a‡	1	1			Inch Kerneth Rubber Estates, Ltd.	6.8.0	6.9.0
1909	£200,000	182,500	950,000q	2/-	1/-			Kam. (P.) R. & T. Co., Ltd. "A" Shares	4/7½	4/9
			105,000	1	1			" " " " "B" "	....	nom.
1905	£50,000	36,500	23,000	1	1			Kapar Para Rubber Estates, Co., Ltd.	4.5.0	4.7.6.
			27,000	1	10/-			" " " *Contributory*	....	nom.
1906	£180,000	180,000	180,000	1	1		3% for year ending 30-6-08	Kuala Lumpur Rubber Co., Ltd.	3.3.6	3.4.0
1907	£100,000	81,000	90,000o*	1	18/-		7% for year ending 30-12-08	Labu (F.M.S.) Rubber Co., Ltd. *Contrib.*	2.16.6	2.17.6
1907	£320,000	232,395	197,395z	1	1	3,000	10% for year ending 31-12-08	Lanadron Rubber Estates, Ltd.	4.17.6	5.0.0
			70,000	1	10/-			" " " *Contributory*	3.12.6	3.15.0
1906	Gs 135,000	135,000	580	250	250			Langen Rub. and Cocoanut Co., Ltd.	295.00	300.00
1908	£125,000	75,000	6,000m*	1	1			Ledbury Rubber Estates Ltd.	2.3.6	2.4.0
			40,000	1	7/6			" " " *Contributory*	1.5.6	1.6.6
1895	£100,000	98,324 8/-	883,244a*	2/-	2/-	4,000	40% interim for 1909	Linggi Plantations Ltd., *Ordinary*	1.3.10½	1.4.0
			10,000	1	1		7% for year ending 31-12-08	" " " 7% *Pref.*	....	nom.
1907	£140,000	107,000	107,000k	1	1		3% for year ending 31-12-08	London Asiatic R. & Produce Co., Ltd.	2.14.0	2.15.6
1906	£300,000	300,000	185,000	1	1		7½% for year ending 31-12-07	Malacca Rubber Plants., Ltd. *Ordinary*	7.10.0	7.12.6
			115,000	1	1		" " " " " "	" " " 7½% *Pref.*	7.10.0	7.12.6
1909	$400,000	400,000	80,000	5	5			Pajam Limited	6.50	7.50
1903	£30,000	22,500	225,000l	2/-	2/-		25% interim during 1909	Pataling Rubber Estates Synd. Ltd.	1.2.0	1.2.6
1909	$500,000	450,000	45,000	10	10			Pegoh, Limited	17.50	17.75
1906	£85,000	85,000	85,000	1	1		10% for year ending 31-3-09	Perak Rubber Plantations, Ltd.	3.12.0	3.15.0
1906	$250,000	225,000	22,500	10	10			Ragalla Rubber Co., Ltd. *Ordinary*	22.00	23.00
		25,000	2,500	10	10			" " " 8% *Preference*	22.00	23.00
1909	£60,000	37,500	15,000	1	1			Rembia Rubber Estates Ltd. *Ordinary*	....	nom.
			45,000	1	10/-			" " " 6% *Cum. Pref.*	15/6	15/9
1904	£20,000	16,943 8/-	20,000x	1	1			Sagga Rubber Company, Limited	4.15.0	5.0.0
1904	$100,000	100,000	1,000g*	100	100	20,000	30% interim for 1909.	Sandycroft Rubber Co., Ltd	695.00	700.00
1907	£100,000	80,400	48,000p*	1	1			Seafield Rubber Co., Ltd.	2.17.6	3.0.0
			48,000	1	13/6			" " " *Contributory*	2.10.0	2.11.0
1898	£30,000	30,000	300,000	2/-	2/-	3,000	25% interim for 1909	Selangor Rubber Co., Ltd	1.15.6	1.16.0
1906	£65,000	65,000	65,000	1	1		3% for year ending 31-12-08	Shelford Rubber Estate, Ltd.	1.14.0	1.14.6
1909	£120,000	81,250	62,500p	1	1			Singapore Para Rubber Estates, Ltd.	....	nom.
			37,500t*	1	10/-			" " " " *Contributory*	1.6.6	1.7.6
1905	$500,000	500,000	5,000	100	100			Singapore Rubber Co., Ltd.	212.50	215.00
1903	$250,000	250,000	2,500	100	100			Singapore & Johore Rub. Co., Ltd.	295.00	300.00
1909	$250,000	60,000	10,000g‡	10	6			St. Helena Rubber Coy., Ltd	12.00	13.50
1906	£175,000	174,615	174,615n*	1	1		4½% for year ending 31-3-09	Straits Settlements (B.) Rub. Co., Ltd.	1.10.0	1.10.6
1907	£45,000	36,900	12,000b‡	1	1			Sungei Choh Rub. Estate, Ltd. *Fully pd.*	....	nom.
			32,400	1	15/-			" " " " *Contributory.*	1.11.6	1.12.6
1906	£110,000	00,000	100,000h*	1	1			Sungei Kapar Rubber Co., Ltd.	3.5.0	3.6.6
1907	£70,000	49,875	14,000	1	1			Sungei Salak Rubber Co., Ltd.	2.2.6	2.3.6
			41,000	1	17/6			" " " *Contributory*	2.0.0	2.1.0
1904	£50,000	45,710	41,920m	1	1			Sungei Way (Selangor) Rub. Co., Ltd.	2.19.0	3.2.6
			7,580	1	10			" " " *Contributory*	....	nom.
1907	£200,000	154,000	154,000q*	1	1		5% for year ending 31-8-08	United Serdang (S.) R. Plantations, Ltd.	3.12.6	3.17.6
1904	£60,000	50,600	506,000n	2/-	2/-		80% for year ending 31-3-09	Vallambrosa Rubber Co., Ltd.	1.4.6	1.5.6
								GENERAL		
1907	$1,500,000	1,065,150	25,000i*	10	10		10% for year ending 31/12/08	Eastern Smelting Co. Ltd.	....	13.00 n.
			116,450	10	7		10% for year ending 31-12-08	" " "	10.15	10.25
1898	$225,000	225,000	4,500	50	50	150,000	15% & 2½% bon. for yr. end. 31-12-08.	Fraser & Neave, Ltd.	145.50	146.50
1905	$2,400,000	2,400,000	18,000	100	....	75,000	2½% for year ending 31-10-08	Howarth Erskine, Ltd.	78.00	80.00
			6,000	100	....		7% for year ending 31-10-08	" " 7% *Pref*	97.50	100.00
1896	$1,000,000	1,000,000	6,000	100	100	600,000	10% for year ending 31-12-07	Katz Brothers, Ltd. *Deferred*	....	120.00
			4,000	100	100		8% " " " " "	" " 8% *Cum. Pref*	....	nom.
1901	$34,000	34,000	3,400	10	10		20% for year ending 31-10-08	Maynard & Co., Ltd.	22.50	23.50
1899	$875,000	875,000	6,000	100	100	175,000	5% for year ending 31/12/08	Riley, Hargreaves & Co., Ltd	57.50	60.00
			2,750	100	100		7% for year ending 31/12/08	" " " " 7% *Pref.*	97.50	102.50
1903	$600,000	250,000	25,000o	10	10		10% for year ending 30-6-09	Singapore Cold Storage Co., Ltd	9.50	9.75
1891	$30,000	30,000	600	50	50	23,000	10% for year ending 31-7-08	Singapore Dispensary Ltd.	55.00	57.50
1903	£400,000	400,000	400,000	1	1			Singapore Electric Tramways, Co., Ltd.	4/-	4/3
1884	$200,000	200,000	2,000	100	100	35,000	10% during 1907	Straits Ice Co., Ltd	....	150.00
1890	$500,000	498,000	4,980c*	100	100	760,000t	5% interim for 1909.	Straits Steam Ship Co., Ltd.	180.00	185.00
1887	$3,000,000	3,000,000	300,000	10	10	130,000u 1,222,409	10% & 5% bon. for half yr. end. 31-3-09	Straits Trading Co., Ltd.	52.00	52.25

DEBENTURES

Name	Buyers.	Sellers.
Howarth Erskine, Ltd. 6% .... $ 600,000	....	par.
Riley, Hargreaves & Co., Ltd. 6% 284,000	1%	3% p.
Singapore Electric Tramways, Co., Ltd. 5% £350,000	....	....
Singapore Municipal 15% 1,878,000	3%	6% p.
" " 4½% 1,600,000	2%	5% p.
" " 4% 602,900	10%	8% d.

a { 11,282 unissued; 43,949 6% debenture
b 2,500 unissued
c 5,100 "
d 20,000 "
e { 54,500 £1 Prefs. issued; 45,500 £1 " unisd.; 100,000 5/- Ord. "
f 6,250 unissued
g 3,300 "
i 12,993 "
j 5,000 "
k £40,000 6% Debentures 33,000 unissued
l 75,000 unissued
m 500 to be issued to employees
n 94,000 unissued.
o 35,000 "
p 20,000 "
q 175,000 unissued "A" shares
t Sundry Reserves.
u Sundry Reserves.
v 7,500 unissued
w 20,000 "
x 4,595 part-paid shares
z 52,605 unissued
a* 16,756 "
c* 4,880 "
d* 15,000 unissued
e* 20 "
f* 20,000 "
g* 221 7½% Debentures
h* 10,000 unissued
i* 8,550 unissued
k* 6,000 "
l* 5,000 "
m* 25,000 "
n* 385 forfeited
o* 10,000 unissued
p* 4,000 "
q* 46,000 "
r* 7,500 "
s* £10,000 Convertible 6% Debentures
t* 200,000 unissued
u* 5,000 "
v* 5,000 "
w* 20,000 "
x* 20,000 "
y* 10,000 "
z* 7,172 "
a‡ 20,000 "
b‡ 600 "
c‡ 2,350 "
d‡ 500,000 "
e‡ 15,000 "
f‡ 75,600 "
g‡ 15,000 "

YOKOHAMA SHARE QUOTATIONS

COURTESY A. C. HUTTON POTTS, SHARE AND GENERAL BROKER, YOKOHAMA, OCTOBER, 1909.

STOCKS.	CAPITAL.	NO. OF SHARES.	ISSUE VALUE.	AMOUNT PAID UP.	RESERVE FUND.	AT WORKING ACCOUNT OR CARRIED FORWARD.	DATE.	LAST DIVIDEND.	FOR TERM.	CLOSING QUOTATION.
Brett & Co., Ltd.	-Y- 28,000	2,800	-Y- 10	-Y- 10			31-12-08	12½%	for 1 year	10 Sellers
Club Hotel, Ltd.	185,000	1,850	100	100	3,000	-Y- 768.96	31-3-08	7%	for 1 year	70 Nominal.
Grand Hotel, Ltd.	500,000	5,000	100	100	10,000		30-6-09	4%	for ½ year	100 Nominal.
Helm Bros., Ltd.	186,000	3,720	50	50	25,000	-Y- 6,395.55	31-12-08	17½%	for 1 year	80 Sales,
Langfeldt & Co., Ltd.	100,000	2,000	50	50	10,000	6,296.63	30-6-09	5%	for ½ year	45 Sellers.
C. Nickel & Co., Ltd. †	500,000	20,000	25	25		1,782.10	31-10-08	20%	for 1 year	45 Buyers
Yokohama Engine and Iron Works *	500,000	10,000	50	50	50,000	-Y- 29,421.19	31-5-08	10%	for 1 year	70 Sales
Oriental Hotel, Ltd., Ordinary }	250,000	3,000	50	50	306,090.49		31-8-07	12%	for 1 year	50 Nominal.
Oriental Hotel, Ltd., Preference }		2,000	50	50				8%	for 1 year	50 Nominal.
The Union Estate and Investment Co., Ltd. ‡	1,000,000	10,000	100	100	6,000.00	1,753.03	30-9-08	7%	for 1 year	100 Nominal.

† 285,000 unissued.
‡ 475,000 unissued.

*-Y- 390,000 issued.
110,000 unissued.

DEBENTURE LOANS.	AMOUNT OF LOAN.	FACE VALUE OF DEBENTURES.	RATE OF INTEREST.	INTEREST PAYABLE.	CLOSING QUOTATION.
Brett & Company, Limited	11,500.00	100.00	7%	1 June and 1 Dec.	95 Sales.
Yokohama United Club	250,000.00	100.00	7%	30 June and 31 Dec.	100 Sales.
C Nickel & Company, Limited	50,000.00	100.00	8%	1 May and 1 Nov.	110 Sellers.
Oriental Hotel, Limited	250,000.00	100.00	8%	1 April and 1 Oct.	100 Sellers.
Union Estate and Investment Co., Limited	250,000.00	100.00	6%	30 June and 31 Dec.	95 Sellers.

JAPANESE STOCKS.	FACE VALUE.	AMOUNT PAID UP.	LAST DIVIDEND.	DIVIDEND PAYABLE.	CLOSING QUOTATION.
Bonds & Debentures.					
Exchequer Bonds 2nd issue	-Y-100	-Y-100	5%	March and Sept.	-Y- 99.50
Exchequer Bonds 3rd issue	100	100	5%	March and Sept.	,, 99.70
Consolidated Bonds (Seiri)	100	100	5%	June and Dec.	,, 96.30
War Bonds (Gunji)	100	100	5%	June and Dec.	,, 96.30
Imperial 5% Bonds	100	100	5%	March and Sept.	,, 96.20
Special 5% Bonds (issued 1906)	100	100	5%	June and Dec.	,, 96.30
Yokohama Water Works Bonds	100	100	6%	June and Dec.	,, 101.00
Yokohama City Public Loan Bonds	100	100	6%	March and Sept.	,, 98.00
Osaka City Harbour Construction Bonds	100	100	6%	June and Dec.	,, 101.00
Osaka City Public Loan Bonds	100	100	6%	June and Dec.	,, 101.00
Kawasaki Dock Yards Co.'s Debentures	100	100	7%	June and Dec.	,, 101.00
Tokyo Race Associations "	500	500	30%	June and Dec.	,, 110.00
Railways & Electric Trams.					
Tokyo Railway Company, Limited	50	50	5 2/15%	June and Dec.	,, 76.60
Yokohama Electric Tramway Company, Limited	50	50	6%	July and Jan.	,, 48.00
Keihin Electric Tramway Company, Limited	50	50	6%	June and Dec.	,, 66.00
Southern Manchurian Railway Co., Ltd.	100	20	6%	June and Dec.	,, 40.00
Hanshin Electric Tramway Co., Ltd.	50	50	12%	May and Nov.	,, 127.00
Cotton Spinnings.					
Kanegafuchi Cotton Spinning Company, Limited	50	50	14%	July and Jan.	,, 109.50
Fuji Gassed-yarn Company, Limited	50	50	14%	July and Jan.	,, 97.95
Tokyo Cotton Spinning Company, Limited	50	50	5%	July and Jan.	,, 45.00
Imperial Hemp Weaving Company, Limited	50	50	12%	July and Jan.	,, 75.00
Nisshin Boseki Kabushiki Kaisha	50	12½	5%	——	,, 15.15
Sugar & Beer Cos.					
Dai-nippon Sugar Refinery Company, Limited	50	50	....	May and Nov.	,, 16.00
Ensuiko Sugar Refinery Company, Limited	50	20	20%	June and Dec.	,, 39.50
Dai-nippon Beer Company, Limited	50	50	12%	July and Jan.	,, 81.00
Kirin Brewery Company, Limited	50	50	6%	July and Jan.	,, 50.50
Docks & Steamships.					
Yokohama Dock Company, Limited	50	33	12%	June and Dec.	,, 61.00
Uraga Dock Company, Limited	50	50	....	July and Jan.	,, 12.00
Kawasaki Dockyard Company, Limited	50	50	12½%	Feb. and Aug.	,, 54.00
Nippon Yusen Kaisha	50	50	10%	May and Nov.	,, 82.00
Hokkaido Tanko S. S. Company, Limited	50	50	14%	July and Jan.	,, 43.50
Miscellaneous					
Tokyo Electric Light Company, Limited	50	50	12%	June and Dec.	,, 96.00
Tokyo Gas Company, Limited	50	50	13%	July and Jan.	,, 100.80
Yokohama Union Electric Light Company, Limited	50	50	14%	July and Jan.	,, 92.50
Fuji Paper Mills	50	50	6%	June and Dec.	,, 37.00
Otaru Timber Company, Limited	50	50	....	March and Sept.	,, 13.50
Hoden Petroleum Company, Limited	50	50	20%	April and Oct.	,, 87.10
Tokyo Rope Manufacturing Company, Limited	50	50	18%	June and Dec.	,, 100.00
Japan Horse Improvement Company, Limited	50	50	15%	March and Sept.	,, 6.00
Tokyo Stock Exchange Company	50	50	15 1/15%	June and Dec.	,, 173.00
Osaka Electric Light Company, Limited	50	50	16%	July and Jan.	,, 132.00
Kobe Electric Light Company, Limited	50	50	14%	July and Jan.	,, 103.00

BANGKOK SHARE QUOTATIONS

(COURTESY MESSRS. EDWARDS & CO., BANGKOK, SIAM.)

NAME.	BUYERS.	SELLERS.	QUOTATION.	ESTABLISHED.	CAPITAL.	NO. OF SHARES.	ISSUE VALUE.	AMOUNT PAID UP.	RESERVE FUND	LAST DIVIDEND	WHEN PAID OR PAYABLE.
Siam Electricity Co., Ltd.	Tcs. —	Tcs. 370	Tcs. 370	1901	Tcs. 3,383,296	85,000	£ 10	£ 350,000	Tcs. 448,174.31	12% & 12½ T. bon.	Feb. 29, 1908
Paknam Railway Co., Ltd	,, —	,, —	,, 185	1893	,, 400,000	5,000	Tcs. 80	Tcs. 400,000	,, 80,000	6% & 2 Tcl. bonus for ½ year ending	Dec. 31, 1907
Siam Tramway Co., Ltd	,, —	,, 150	,, 150	1905	,, 1,450,000	6250 Shares 7250 Deb. 1000 P. Shares	,, 100	,, 1,450,000	—	2%	Mar. 31, 1908 Sept. 30, ,,
Meklong Railway Co., Ltd	,, —	,, 105	,, 105	July 12, 1907	,, 2,230,000	22,300	,, 100	,, 2,230,000	17,316 22	—	—
Bangkok Manufact. Co., Ltd.	,, —	,, 130	,, 135	1898	,, 400,000	4,000	,, 100	,, 400,000	—	None	—
Howarth Erskine, Ltd.	,, —	,, —	,, 140	1905	$ 2,400,000	24,000	$ 100	$ 2,400,000	$ 40,000	5%	Oct. 31, 1908
Bangkok Dock Co., Ltd.	,, —	,, —	,, 150	1865	Tcs. 1,000,000	6,000	Tcs. 100	Tcs. 1,000,000	Tcs. 270,000 60,000	12½% & 2½ Bonus	Dec. 31, 1907
Siam Steam Packet Co.	,, —	,, 70	,, 70	1898	,, 190,000	2,625	,, 50	,, 131,250	,, 36,000	14%	Dec. 31, 1907
Siam Commercial Bank	,, —	,, —	,, 1,100	1906	,, 3,000,000	3,000	,, 1,000	,, 3,000,000	,, 140,000	5%	Mar. 31, 1907
Menam Motor Boat Co., Ltd.	,, —	,, —	,, 100	1905	,, 200,000	2,000	,, 100	,, 125,000	—	—	—
Transport Co., Motor, Ltd.	,, —	,, 100	,, 100	1906	,, 200,000	4,000	100	£ 4, per Share	—	—	—
Jenderata Rubber Co *	,, —	,, —	79		£ 17,580		£ 10				
Siam Steam Navigation Co., Ltd.	,, —	,, —	320		Tcs. 2,000,000		Tcs. 200				

*6 Calls paid.

PHILIPPINE SHARE REPORT

June 1st, 1909

Name	When Incorporated	Authorized Capital	Issue Value of Share	No. of Shares	Subscribed	Paid up	Reserve	Working %	Date	Last Dividend	Closing Quotations
American Drug Store	1908	₱ 100,000	₱1,000	100	40	₱1,000	......	₱ 5,000	Jan. 4, 1909..	....	No Sellers.
*Banco Español Filipino	1851	3,000,000	200	15,000	8,439	200	₱225,000	......	....	7% for year 1908....	190 nom.
Benguet Consolidated Mining Co	1903	2,000,000	2	1,000,000	495,000	2	......	38,000	Feb. 2, 1909..	....	No Sellers.
Benguet Commercial Co., Ltd	1908	200,000	10	20,000	7,360	10	......	......	....	7% for year 1907	₱10.
Cadwallader-Gibson Lumber Co	1908	1,000,000	100	10,000	8,650	100	......	......	....	....	No Sellers.
*Camote-Clayton Mining Co	1909	400,000	10	40,000	20,000	10	......	......	....	....	₱10.
*Compania Maritima	......	1,018,000	200	5,090	5,090	200	......	......	....	....	₱40 buyers
*El Varadero de Manila	......	350,000	100	3,500	3,500	100	......	......	....	....	Sellers 70
Export & Import Lumber Co	......	200,000	200	1,000	1,000	200	......	......	....	....	No sellers.
*Fabrica de Hielo de Manila	......	350,000	50	7,000	7,000	50	......	......	....	18% for year 1908...	₱80 sellers
*Germinal Cigar Factory	......	500,000	500	1,000	1,000	500	₱285,000	......	....	6% for year 1908 and 6% on capital......	750 sellers
H. E. Heacock Co	1909	100,000	100	1,000	800	100	......	......	....	First year...........	No sellers.
*Headquarters Mining Co. (Inc.)	1908	600,000	10	60,000	35,000	10	......	......	....	....	₱10.
Insular Lumber Co	1907	2,000,000	200	10,000	9,000	200	......	......	....	....	No sellers.
Juan Seiboth Co., Ltd	1908	150,000	20	7,500	500	20	......	......	....	First year...........	....
*La Concha Button Factory	......	75,000	100	750	750	100	......	......	....	10% for year 1908...	₱110 sellers.
Lambert, Springer Co	1908	200,000	1,000	200	80	1,000	......	......	....	....	No sellers.
Luson Stevedoring Co	1909	250,000	25	10,000	4,200	25	......	......	Sept. 15. 1909	15%........	No sellers.
Mindanao Herald Publishing Co	1907	15,000	100	150	75	100	......	......	Dec. 31, 1908.	½ of 1% interim for 1908	No sellers.
Newspaper Publishing Co	1907	400,000	100	4,000	3,740	100	......	......	....	....	....
Walter E. Olsen Co., Inc	1909	500,000	100	5,000	2,033	100	......	......	....	First year...........	No sellers.
Paracale Gold Dredging Co	1907	£10,000	£1	10,000	9,000	£1	......	......	....	....	£1.10 s.
Palomar Park Amusement Co	1908	300,000	......	300,000	60,312	.50	......	......	....	....	₱1.
Phil. Hemp Machine Co., Ltd	1907	1,000,000	100	10,000	8,500	100	......	......	....	....	₱100
Philippine Publishing Co	1907	600,000	200	3,000	2,181	200	......	......	Mar. 1st, 1909	₱3 a share for 1908..	₱50
Port Banga Lumber Co	1908	100,000	100	1,000	934	100	None.	40,000	First Saturday in January..	None........	No sellers.
The Philippine Gold Dredging Co	1907	200,000	10	20,000	20,000	10	......	......	....	....	No sellers.
*Philippine Co., Ltd	......	750,000	10	7,500	7,500	10	......	......	....	....	₱5 buyers.
Philippine Rosin & Turpentine Co	......	150,000	1	150,000	70,000	1	......	......	....	First year...........	....
Philippine Exploration Co	1908	2,000,000	10	200,000	90,000	10	......	......	....	....	No sellers.
The Rosenstock Pub. Co	1908	75,000	10	7,500	6,000	10	......	......	....	....	No sellers.
*San Nicolas Iron Works	......	300,000	500	600	600	500	......	......	....	....	₱200 sellers.
San Mauricio Gold Mining Co	1908	4,000,000	200	20,000	......	......	......	......	....	First year...........	No sellers.
Tarlac Railway Co	1906	150,000	100	1,500	1,500	100	......	₱9,674.75	June 30, 1908.	....	No sellers.
Union Hemp Machine Co	1909	50,000	10	5,000	2,600	10	......	......	....	....	No sellers
Zamboanga Cold Storage Co	1903	40,000	100	400	200	100	₱8,500	......	May 1st, 1909.	20%........	₱120.

* John T. Macleod's share list

PHILIPPINE BONDS

	Dated	Authorized	Issued	Outstanding	Par Value	Rate of Int.	When payable	Last Quotation
Philippine Friar Land Bonds	Feb. 1st, 1904	$7,000,000	$7,000,000	$7,000,000	$ 100	4%	Feb. 1, 1914	104⅝
Public Works and Permanent Improvement Bonds	March 1, 1905	$5,000,000	$2,500,000	$2,500,000	$ 100	4%	March 1, 1915	104⅝
Do.	Feb. 1, 1906	....	$1,000,000	$1,000,000	$ 100	4%	Feb. 1, 1916	104⅝
Manila Sewer and Water Works Improvement Bonds	June 1, 1905	$4,000,000	$1,000,000	$1,000,000	$ 100	4%	June 1, 1915	104⅛
Do.	Jan. 2, 1907	....	$2,000,000	$2,000,000	$ 100	4%	Jan. 2, 1917	104⅞
*Philippine Railway First Mortgage Fourt per cent Thirty Year Sinking Fund Gold Bonds	July 1, 1907	$15,000,000	$5,736,000	$5,736,000	$1000	4%	July 1, 1937	97

*Payment of interest guaranteed until maturity or redemption by the Philippine Government.

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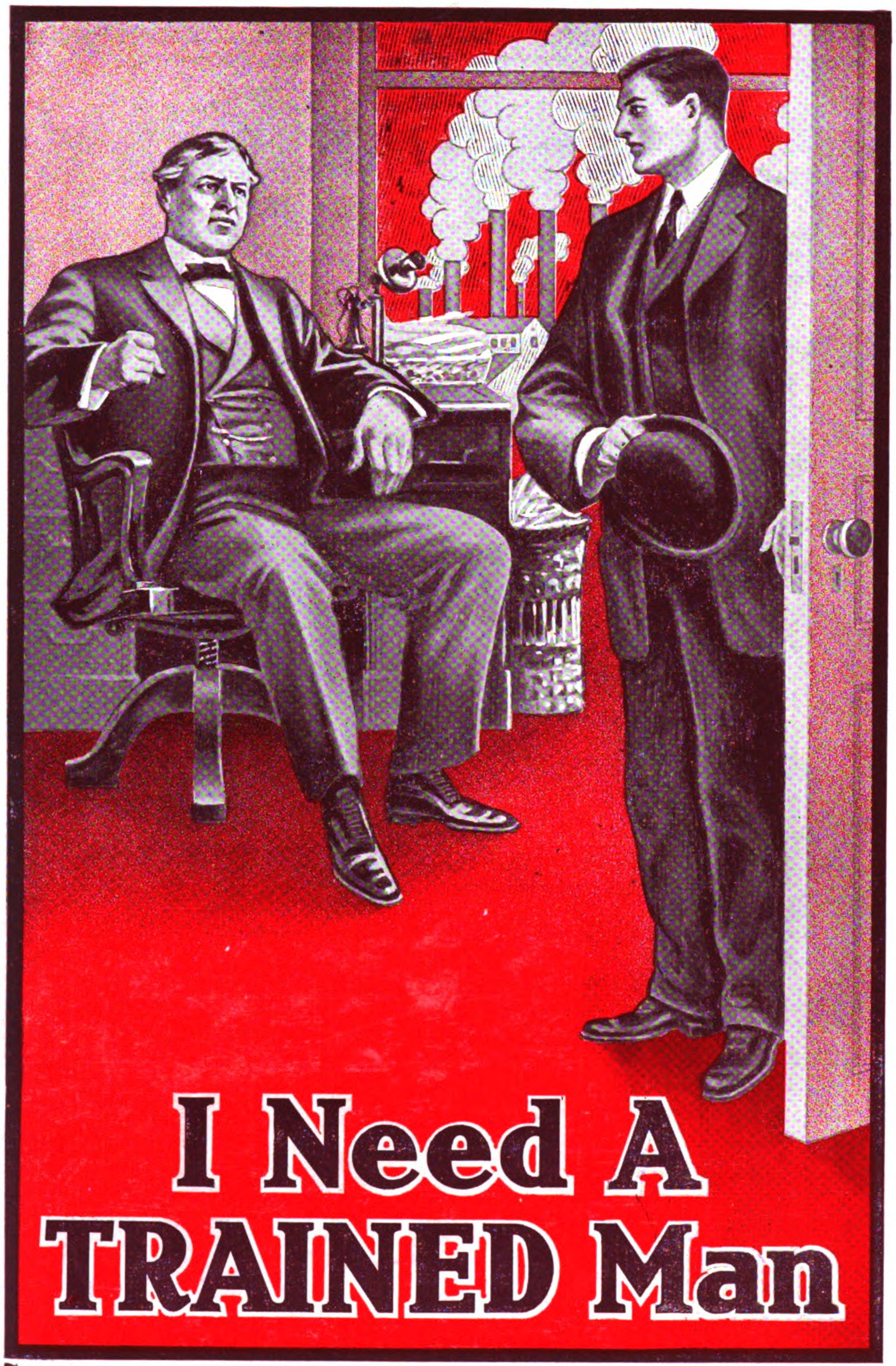

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SUPPLEMENT TO
THE FAR EASTERN REVIEW
November, 1909.

His Excellency HSU SHIH-CHANG,

PRESIDENT OF THE BOARD OF POSTS AND COMMUNICATIONS

A native of Chili Province, has filled the posts of Grand Councillor, Minister of Government Council, President of Board of Police, President, Board of Interior, and other high offices. Appointed first Viceroy or Governor General of Manchuria in April, 1907, and in May of this year was transferred to Peking, as head of the Railway Board. In August he was also appointed to the Office of Director General of the Tientsin-Pukow Railway. One of China's capable and honest executives.

THE FAR EASTERN REVIEW
COMMERCE ◆ ENGINEERING ◆ FINANCE

VOL. VI. MANILA, P. I., SHANGHAI, AND YOKOHAMA, NOVEMBER, 1909 No. 6.

RAILWAY LOAN AGREEMENTS
AND THEIR RELATION TO THE OPEN DOOR

His Excellency WANG TA-HSIEH,
VICE-PRESIDENT OF THE YUCHUANPU
(BOARD OF COMMUNICATIONS.)

A PLEA FOR FAIR PLAY TO CHINA

By
GEO. BRONSON REA.

His Excellency SHEN YUN-PEI,
ACTING VICE-PRESIDENT OF THE YUCHUANPU
(BOARD OF COMMUNICATIONS.)

WHEN China first conceded to Belgium and America the right to build her main trunk line, she distinguished between them by retaining control of the funds in the Belgium Agreement, and conceding to Americans full power over expenditure on their section. At that time the utter ignorance about railway matters amongst the Chinese induced them to grant exceptional powers to foreigners, and the question of the honesty of their officials was not made an issue in the agreements. Both of these contracts have since lapsed and are only interesting as marking a turning point in China's history, by creating a precedent since followed up by other moneylenders exacting full control over railway loan funds.

On the 17th day of June 1898, when China contracted her foreign loan for the Peking-Newchwang Line, she voluntarily admitted the principle that her officials were incompetent to honestly administer the proceeds of a foreign loan to the satisfaction of the investor. And having once placed her financial probity in question, she has been forced through successive similar agreements to follow a practice which no other nation in the world would tolerate for an instant. Through all subsequent loan negotiations China has been made to feel the mortification of the foreign assumption that although her security is good, her integrity is rotten. On the assumption that Chinese officials could not be entrusted with full powers of expenditure, only honest and capable foreigners could control loan funds, or as in later years when China reasserted a little of her dignity, this privilege was accorded to her under foreign check and supervision of accounts. In short, while China could give ample security and pay good interest, she could not be trusted with the expenditure of the money. And under the provisions of loan agreements based on these principles, China has been deprived of authority in her own affairs, and the national commercial and political interests of money lenders advanced without coming into direct conflict with the Open Door Doctrine.

Under the terms of the Peking-Newchwang Loan for £2,300,000, the British and Chinese Corporation entered into an agreement with China for 45 years, which gave them practical control of the property, and inserted a wedge for British railway principles which, if driven home, would effectively destroy the chance of American or Continental railway supplies gaining a foothold in China. This loan was guaranteed by a first mortgage on the entire property between Peking and Shanhikwan, and on the freights and earnings of the new lines when constructed. This in itself is sufficient guarantee for a loan in any other country, but we find in addition that the Imperial Government of China unconditionally guaranteed and declared itself responsible for the payment of the principal and interest.

The term was for 45 years, and China engaged herself not to redeem or convert the loan except as arranged with the Corporation, and no further loan was to be raised on the same security except through the Corporation, and the lines named in the Agreement were never to be alienated or parted with. This insured the Corporation a lien on the road during the 45-year life of the Agreement.

One of its first provisos was the expenditure of about $1,000,000 gold for new rolling stock as recommended by the Engineer, and further along we find that during the currency of the loan the Chief Engineer of the Railway shall be a British subject, and the principal members of the Railway Staff shall also be Europeans, who could be appointed by the Chinese Administrator General, but

H. E. TSEN CH'UN-HSUAN,
EX-PRESIDENT OF BOARD OF COMMUNICATIONS.

H. E. SHENG KUNG-PAO, SHENG HSUAN HUAI,
TITULAR VICE-PRESIDENT OF BOARD OF COMMUNICATIONS, ETC., THE FORMER DIRECTOR GENERAL OF RAILWAYS, WHO SIGNED THE LOANS, FOR THE CANTON-HANKOW—PEKING-HANKOW—CHOU-TAI-PEINLO—AND SHANGHAI-NANKING RAILWAYS.

dismissed only in the event of misconduct or incompetency, after consultation with the Chief Engineer. Or in other words, the latter had powers superior to the Chinese head of the Railway. A European accountant was also provided for, to act with the Administrator General and Chief Engineer in the supervision of Receipts and Expenditures. Probably no loan ever made was so amply secured and safeguarded. Mortgage on the property was strengthened by Imperial Government guarantee, and as a check on this ample security, a Chief Engineer, named by the Corporation, had practical control of affairs. The price of the loan to China was 90, but the Corporation had authority to reduce it to 88 at its own discretion in case the market was unfavorable. The operation of this agreement has been advantageous to both sides. In view of the unsettled state of affairs in China ten years ago, too many safeguards could not be thrown around any foreign loan of importance, so the Corporation in defending the interests of investors had to exact terms, which would be impossible to secure now, and China in her peculiar situation had to accept them.

The prospectus of the loan was no sooner issued than an official remonstrance was made by Russia to the effect that the appointment of the Chief Engineer and Accountant constituted "foreign control of the line," and this objection was only withdrawn after the understanding with Great Britain as to their respective spheres of railway influence. In view of subsequent developments, Russia's attitude has been amply vindicated. We find that the natural increase of traffic over the road soon placed it on a financial basis far beyond the original hopes entertained for its prosperity. The earning capacity of the line, expressed at the rate of interest returned on the capital value, rose from 4¾ per cent in 1903 to 7 per cent in 1904, 20¾ per cent in 1905, 18¼ per cent in 1906, 13 per cent in 1907 and 18 per cent in 1908. The surplus profits were sufficient to pay off the loan in three years or justify its conversion if untrammelled by the Agreement. From the surplus profits the new Kalgan line has been constructed and equipped at a cost of over £1,100,000, or half the value of the Loan. It is natural under these circumstances that the Chinese would chafe under the yoke which forced them to acknowledge the Chief Engineer as the dominant factor in the Road. The authority ceded to him under the Agreement was tantamount to an additional guarantee to an over guaranteed mortgage, and when the property had demonstrated its ability to over insure the amount of the Loan, and the Chief Engineer still insisted on enjoying all the prerogatives allowed him under the Agreement, the Chinese naturally resented an attitude which reflected on their capacity and integrity.

The ability of Mr. Kinder, the retired Foreign Director and Chief Engineer, is undoubted, and there is no hint or insinuation against his honesty or capacity in the Chinese side of the argument. But they do contend that despite his kindly nature and retiring manners Mr. Kinder retained all the authority his position allowed him and refused to recede from his attitude, even when it was acknowledged that the Loan was many times over guaranteed by the property. Out of def-

H. E. TANG SHAO-YI,

GRADUATE OF COLUMBIA UNIVERSITY, NEW YORK. DIRECTOR-GENERAL OF THE SHANGHAI-NANKING RAILWAY WHILE UNDER CONSTRUCTION.

HIS EXCELLENCY TAOTAI K. S. LOW,

MANAGING DIRECTOR OF THE TIENTSIN-PUKOW RY., SOUTHERN SECTION. GRADUATE OF TROY POLYTECHNIC INSTITUTE. HIS UNSWERVING FIDELITY TO HIS COUNTRY'S INTERESTS HAS CALLED DOWN ON HIM THE UNJUST CRITICISMS OF FOREIGNERS.

erence to Chinese feelings and opinion they contend his authority should have relaxed to a nominal supervision, permitting them fuller liberty of action in the management. As the Chinese capital interest in the road is $21,994,428 Mex. against $24,840,000 represented by the Loan at the end of 1908, or about equal at the present writing, they have every incentive to maintain the road at a high standard to insure increased profits.

Under the terms of the Loan Agreement Mr. Kinder dominated the situation for the last ten years or up to his retirement in April last. It is only natural that in consequence British railway principles largely prevail on the I.R.N.C., and if his policy had been approved by the Chinese Government, they would extend to every road in China to the exclusive benefit of British railway materials and consequent disadvantage to all others. To this end the Shanhikwan Works were erected and bridge construction for the I.R.N.C. and other roads in China undertaken. The amount of new bridge work on the I.R.N.C. would never justify the erection of such an extensive plant, so we are forced to conclude that the main objective was a monopoly of such work throughout the Empire. With engineers in charge specifying standards and following bridge principles prevailing in Great Britain, the logical end meant the monopolization of the Chinese market for British steel manufacturers. That this end is aimed at is indicated by the fact that the Works will be forced to close down for lack of orders, and attempts have already been made by the Chinese Directors of the I.R.N.C. to have other roads in China compelled to patronize them

As to the car and locomotive works at Tongshan, the same argument holds good. British locomotive and car practice predominates and in erecting the extensive car shops the idea was to concentrate at this point the building of the cars at least, for other roads in the Empire. The standards set by the I.R.N.C. have been accepted by the Board of Communications, and only the stubbornness of provincial companies prevent

their general adoption, and with roads constructed under foreign loans of course they cannot be enforced. Tenders for materials on the I.R.N.C. under Mr. Kinder's régime were not always thrown open for general competition, despite the clause of the Additional Agreement of 1902. He established the principle that only certain first class makers could tender, against the protests of other interests. It is true that some locomotives were purchased from America, but their record on the I.R.N.C. has been used by other engineers to disparage their use on other roads in China. It goes without saying that Mr. Kinder's intentions were based on sound principles; China must sooner or later adopt a standard railway practice in cars and locomotives, and anyone who can bring this about, with fairness to both European and American manufacturers, is entitled to all due honors and rewards. But any attempt to induce China to adopt standard regulations drawn up by an engineer of any one nationality, working under the protection of a Loan Agreement, must be viewed with deep concern by competing interests. In this one point the Peking-Newchwang Loan Agreement is not only a direct menace to American and Continental participation in the future railway business in China, but limits British sales to a few approved concerns.

It cannot be urged that this end was in view when the Loan was made or that the British engineers are deliberately following this line of action, but the gradual development of such a policy follows as a natural sequence to the employment of a British Chief Engineer for 45 years on a railway so closely in touch with the Central authorities in Peking.

Following closely on the heels of the Peking-Newchwang Loan came the Peking-Hankow Agreement placed through Belgian financiers. The terms entered into the previous year were much more favorable to China than the British agreement, in that it gave the Chinese authorities greater control of the property. The Loan was for £4,500,000, issued at 90 and in the original draft bore interest at 4%. As the Belgians found the loan could not be successfully floated on this basis, certain charges were added in a supplementary agreement bringing the interest up to 4.4%, and in the final draft terms almost similar to the Peking-Newchwang Loan were secured at 5%, the currency of the Loan to be 20 years. The security was a mortgage on the property guaranteed by the Imperial Government. The Belgian Syndicate secured the right to order all the supplies for the line, subject to the approval of the Chinese Director General. The work of construction and technical control was under a Chief Engineer appointed by the Syndicate, subordinate to the Director General. The Chief Engineer could select the foreign railway staff, but appointments could only be made by the Director General, who also had absolute power of dismissal for cause without reference to the Engineer. All material exclusive of what could be secured in China was to be purchased abroad through the Syndicate, providing the latter would supply them at even quality at the lowest price, otherwise China could purchase where she liked. A commission of 5% was paid the Syndicate on all such purchases. In addition China secured the option of redeeming the entire loan at any time after ten years, the date of first amortization payment

In the construction of this Railway, and the operation of the Agreement, there is every evidence that complete harmony existed and the road was completed to the satisfaction of both parties. The Belgian Chief Engineer drew up the plans, specified the material, and the Director General approved and authorized the payments, and only Belgian or French products were purchased. It was a clear cut, out and out business

His Excellency CHOW CHANG-LING (C. L. CHOW),
FORMER DIRECTOR OF THE IMPERIAL RAILWAYS OF NORTH CHINA. EDUCATED IN AMERICA.

His Excellency CHUNG MUN YEW,
MANAGING DIRECTOR OF THE SHANGHAI-NANKING RAILWAY, A GRADUATE OF YALE UNIVERSITY AND FORMER SECRETARY OF LEGATION AT WASHINGTON AND CONSUL GENERAL AT MANILA.

proposition for the Belgians, for all they could secure from the loan, as the alleged political agents of France and Russia, was the market for their iron and steel. Aside from the rails purchased from the Chinese Hanyang Iron & Steel Works, their manufacturers derived the fullest returns from the undertaking. The provision of the Loan which gave the Chinese absolute control, and the privilege to redeem the property at the termination of ten years placed an effective check on any ambitious schemes to dominate the railway situation for Belgian firms.

When the time came, China exercised her rights and with a new loan redeemed the old one, bought out all the interests of the Belgians to a share in the profits of the line, replaced the Belgian officials with her own men, and is now controlling the property free from any restrictions or interference.

The Cheng-Tai Railway Loan Agreement which received preliminary approval in 1898 was not formally ratified until September 1902, and is known as the Chinese 5% 1902 Loan. Its nominal value was Francs 40,000,000, issued at 90%, for 25 years, with privilege of redemption. In this agreement the Administration of the Railway rested with the Company and all materials purchased abroad were to be procured from France or Russia. The construction was turned over to the Belgian Syndicate of the Peking-Hankow Line and the same rule applies as to the origin of material. Only French or Belgian materials are in use.

His Exc. LIANG JU-HAO

EDUCATED IN AMERICA. FORMER MANAGING DIRECTOR OF THE IMPERIAL RAILWAYS OF NORTH CHINA

The next railway Loan also dealt with a Belgian Agreement for the construction of the Peinlo Line (Kaifengfu-Honanfu). This was signed at Shanghai in 1904 and provided for a loan of £1,000,000, issued at 90, bearing 5% interest, secured on the railways and guaranteed by the Imperial Government. It is redeemable in 20 years, but after 10 years, the date of first amortization, it can be refunded or converted. As for the engagement of the Chief Engineer and foreign staff, and the ordering and purchasing of materials, the same general rule as applied to the Peking-Hankow Line was adopted, and they were all furnished by French or Belgian manufacturers.

The Shanghai-Nanking Railway Loan Agreement of July 1903 for £3,250,000 was issued at 90, and bore interest at 5%, with the Railway and its revenues as first mortgage and guaranteed by the Imperial Government. The life of the Loan is 50 years, repayable at 102½ after 12½ years, and at par after 25 years. Under the provisions of this agreement the Engineer-in-Chief appointed by the British and Chinese Corporation had practical control over expenditures. The Corporation bound itself to build and equip the road as economically as possible in accordance with the best modern methods. The supervision of the road was entrusted to a Board of Commissioners of 5 members, three foreigners and 2 Chinese. One of the Chinese members was appointed by the Director General and the other in conformity with the wishes of the Provincial Viceroy. In addition to the Engineer-in-Chief, the Corpora-

His Excellency LIANG CHEN-TUNG (Sir CHEN-TUNG LIANG)

RECENTLY RESIGNED FROM POST OF DIRECTOR-GENERAL OF THE CANTON-HANKOW RAILWAY TO PROCEED WITH H. I. H. PRINCE TSAI HSUN AS FIRST SECRETARY OF THE MISSION TO STUDY NAVAL AFFAIRS. EDUCATED IN AMERICA IN THE EARLY EIGHTIES. AS FIRST SECRETARY OF THE CHINESE EMBASSY TO QUEEN VICTORIA'S JUBILEE, THE HONOR OF KNIGHTHOOD (K. C. M. G.) WAS CONFERRED ON HIM. WAS ALSO FIRST SECRETARY TO PRINCE CHIN'S MISSION TO GERMANY IN 1901, AND SUBSEQUENTLY MINISTER TO THE UNITED STATES AND PERU.

tion appointed two British members. The functions of the Engineer-in-Chief were limited to the construction and operation of the line and the management of railway affairs.

The predominant influence of the British members on the Board, of which the Chief Engineer was the virtual head, naturally led to the adoption of any plans submitted by him, and the approval of any and all expenditures for material. There was only one logical outcome to such a situation.

The control of expenditure resting in the hands of the Engineer-in-Chief, it follows as a matter of course, that only favored British manufacturers were permitted to tender for supplies, and only British material was recommended and purchased. And as corollary to the above, and the desire to build and equip the road according to the best modern practice, only the most approved materials found their way into the make up of the road. And accordingly the road is as it should be, thoroughly first class in every respect, representing the best in British railway practice and standard throughout. It is undoubtedly the best built and best equipped road in China, and a standing object lesson of British railway principles adapted to Chinese requirements.

HIS EXCELLENCY SHIH SHAO-CHI (ALFRED SZE)
GRADUATE OF CORNELL UNIVERSITY 1902. FORMER DIRECTOR OF THE PEKING-HANKOW AND IMPERIAL RAILWAYS OF N. CHINA

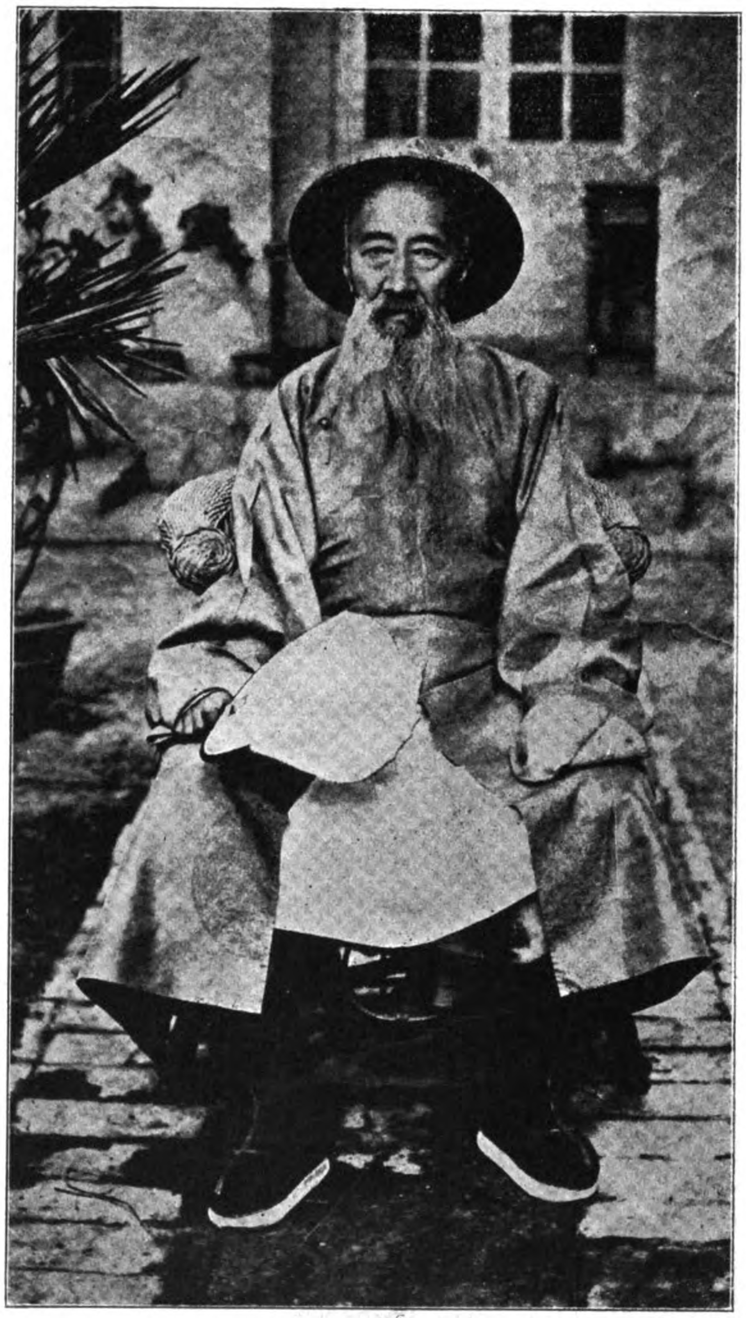
H. E. TSAI SHAO-CHI,
EDUCATED IN AMERICA. FORMER DIRECTOR OF THE IMPERIAL RYS. OF N. CHINA

But the road has cost something like $55,000 gold per mile, exclusive of flotation charges and commissions, as against a cost of $40,000 gold per mile on the Imperial Railways of North China, and an estimated cost of less than $20,000 gold per mile for some roads built under purely Chinese supervision, such as the Kiangsu, Chekiang and Sunning Roads. This unusual divergence of costs has set the Chinese thinking. They allege extravagance and unnecessary expenditure on the part of the Engineer-in-Chief. The fine passenger cars, high grade locomotives, substantial freight houses and commodious stations are held up as too costly for such a short line China. They maintain that the great masses have no luxuries in their homes, and they don't require such things on their travels. They insinuate that the excessive expenditure was due to a desire to increase the size of the Loan, and add to the commission of 5% on all purchases for supplies. The Corporation thus placed in an unpleasant light answers that while the road has cost more than any other in China due to the superior quality of the construction and material, the total would have been greatly reduced had it not been for the many "combines" amongst the Chinese officials to raise local prices for land and ballast. The British side of the dispute is summed up in the following article to *The Times* from its Shanghai correspondent:

"By the terms of the contract Sheng Ta-jen received £250,000 in return for which he is bound to acquire all necessary land, and to obtain the removal of graves within the limits required by the railway. At the beginning of March, eighteen months after the arrival of the engineering staff, only 38 miles of the total length had been acquired, and this in isolated sections; but since then matters have advanced more rapidly. The construction of the first earthworks began in October, and now proceeds as the land is handed over; it is therefore evident that future progress will depend chiefly on Sheng's performance of his duties. He promised to give the company full possession of all the land as far as Soochow before April, and thence to Wusieh before June; but hitherto continuous pressure has not succeeded in securing the fulfilment of this official's promises. In the meanwhile it is interesting to observe that, so soon as the survey of any section is completed and the line definitely located, a Chinese syndicate—of which Sheng Ta-jen's son is the reputed head—purchases the land, wherever possible, from the agricultural owners and holds it against the railway company, claiming a large advance on the market value. (The price paid for agricultural land, compulsorily acquired, varies between £20 and £40 per acre.) These operations primarily

concern the Chinese Government; but, as they delay construction work and thus increase the ultimate cost of the railway, they concern also the concessionnaires to whom Sheng frequently appeals for more funds to meet 'unexpected contingencies.' At the Shanghai terminus, in particular, the necessary land has been so effectively 'cornered' and is held at such high prices that the position of the station may have yet to be altered, and in any case cannot be completed before the opening to Soochow takes place. The humorous side of the matter is thrown into relief when we remember that this is a Chinese Government Railway, and that Sheng and the Chinese Commissioners on the Board of Construction are ostensibly carrying out the work with economy and despatch.

"Another source of difficulty lies in the removal of graves. This is a question which presents itself everywhere in China; but in the country between Shanghai and Wusieh it is unusually prominent, because the line runs through what might be well described as a continuous graveyard. Tombs and family burying-grounds, frequently of great size, are scattered haphazard throughout the highly cultivated fields; many have been removed during the past year, but even on the land already handed over an enormous number remain, and for these gaps have to be left in the embankments. For each grave's removal compensation has to be paid at rates varying between 10s and £1; and as this business is also transacted by Sheng's staff, it presents a continual cause of friction and delay. So-called benevolent societies have been formed at various centres, and collect subscriptions with the ostensibly pious object of removing the remains of the numerous departed Chinese who left no descendants to practise for them the rites of filial piety. The Tai-ping rebellion left many such cases in its track. These societies employ coolies to collect the bones, which are then reverently placed in a Devoe's kerosene packing-case or other equally inexpensive receptacle, and thereafter deposited on the nearest piece of waste land, the society's work being confined to claiming and getting the compensation per set of bones collected. The smallest remains will suffice to justify a claim, and unidentified ancestors are therefor in demand all along the line. It is reported, though difficult to prove that the Chinese members of the Board of Commissioners and other local mandarins have been prominently connected with the 'benevolent' societies.



THE LATE CHANG-CHIH-TUNG

LATE DIRECTOR GENERAL OF THE CANTON-HANKOW RAILWAY, AND LEADING SPIRIT IN THE RECENT LOAN FIGHT FOR RECOGNITION OF CHINA'S HONOR

"Another interesting example of Chinese official methods came to light when the construction of bridges was begun. The corporation soon discovered that a completely organized 'corner' had been formed by the Chinese to control the supply of skilled labor and of bricks. So effective was this 'combine' that considerable time elapsed before work could be done at anything like reasonable prices; and one of the consulting engineers (Mr. A. J. Barry) has therefore made arrangements for the establishment of independent brickyards and the importation of labor from Tientsin. In the meanwhile the construction of all bridges as far as Wusieh has been contracted for.

"A similar 'corner' was subsequently organized to command the supply of ballast: the native syndicate in this case has acquired control of all the existing quarries at Soochow, and even extended its operations in Ningpo. Popular report even credited the Chinese members of the Board of Commissioners with a benevolent interest in these corners. At an early stage of the local negotiations, after the signature of the final agreement, the Chinese claimed that no contracts for construction work should be made except through a native official who claimed the title of 'Director of Contracts.' The organization of 'corners' followed upon the collapse of this preposterous proposal."

H. E. LU HAI-HUAN,

EX-DIRECTOR GENERAL, TIENTSIN-PUKOW RAILWAY, ONE OF CHINA'S MOST HONORED AND UPRIGHT OFFICIALS, WHOSE CAREER HAS BEEN BLASTED OWING TO THE HUGE PECULATIONS OF HIS SUBORDINATE AT THE GERMAN END OF THE LINE

Of course if this report is true, the Chinese adopted a very bad foreign custom, and deserve severe ce sure. We have heard of many instances where the "inside clique" in foreign countries reputed to be highly enlightened have quietly cornered land needed for government, railroad or other public purposes. It seems hardly credible that the Chinese could know of such practice abroad, and leads us to believe that the correspondent simply fixed up an old Tammany Hall legend and inserted Chinese names to give it verisimilitude.

However, if true, it opens up a subtle question. In railway building in China is the foreign loan agent to reap all the profit, and none go to the native? A loan contract, which gives the foreigner the exclusive privilege to charge a commission on purchases, ought at least recognize the right of the Chinese to a little share of profit on his end of the deal. In this particular instance, all the profit went to the foreigner, who had control of expenditures, and the Chinese were barred from anything except on the sale of lands, brick and native labour. The foreigner's commissions on purchases amount to nearly Taels 500,000 or roughly £60,000 or 2% of the amount of the loan, and the clause which gives them this commission is looked on as a continual source of income during the life of the loan.

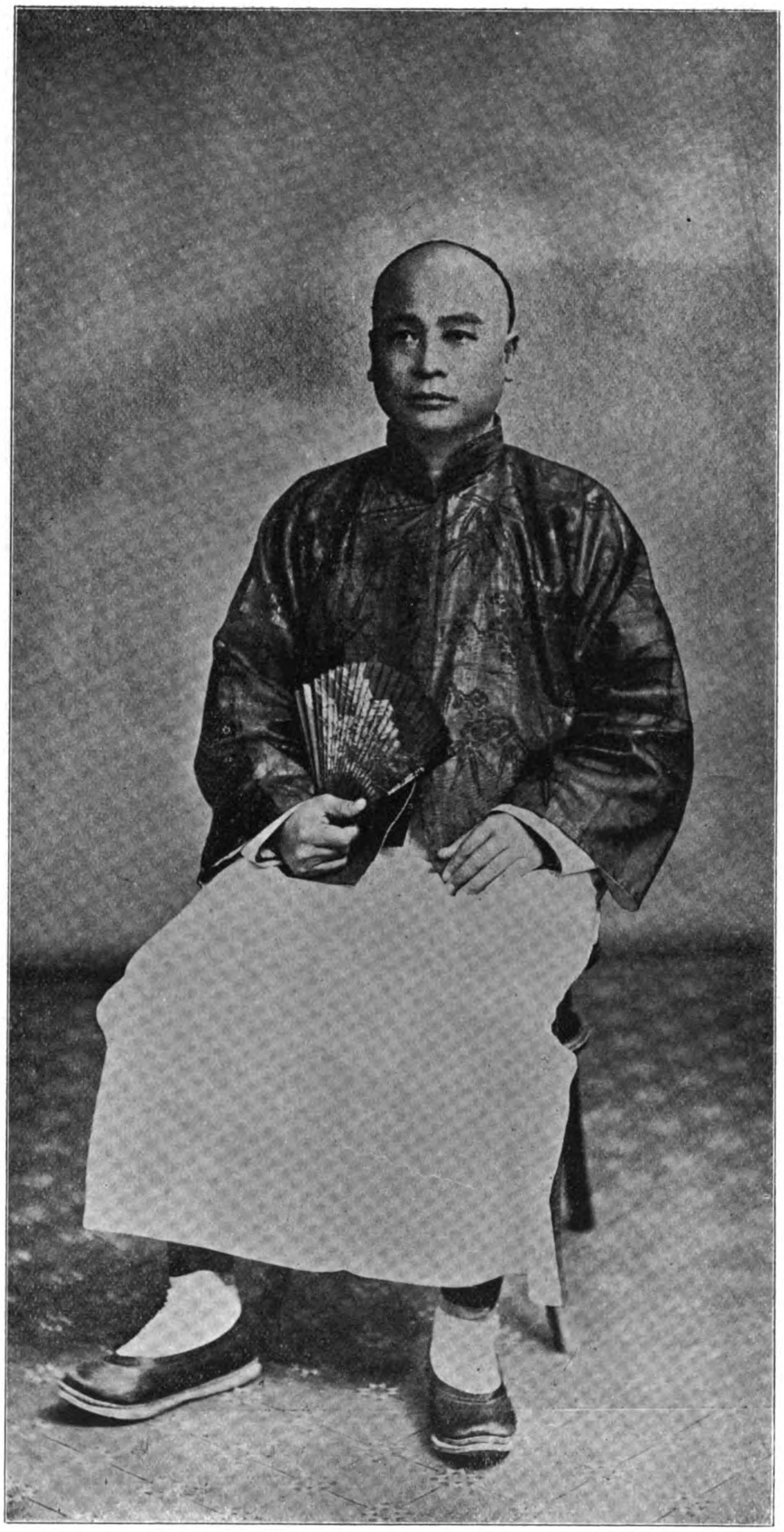
If the Chinese forced up the price of land, as the only means of securing their "official squeeze," and forfeited the good opinion of all right thinking people, what must be said of an arrangement which precluded open competition to all British manufacturers to a share in the supply of materials. If equal opportunity, and fair play had been granted to all British manufacturers of cars and locomotives instead of an approved list, it is contended that many thousands of pounds would have been saved in the cost of the road.

As the correspondent of the *Times* aptly remarks, there is a humorous side to the matter, but we heard no loud sound of merriment from the Chinese Government who had to foot the bills. They may turn the joke on us.

And from these two sides of the question the public is left to accept which view it likes best. The construction of the road has no great engineering difficulties to overcome, and the impression left on the mind, after hearing both sides of the dispute, is that $55,000, gold, per mile would permit of some excessive charges somewhere in the accounts. British interests stoutly maintain with a good show of reason that in complying with the stipulations of the Agreement they have given China a thoroughly first class road in every respect, built and equipped according to the most approved modern railway practice, with stations, road bed and rolling stock which will not require any repairs or alterations for a number of years, and naturally the cost is high, and China will in time learn to appreciate the expenditure.

Chinese opinion holds steadily to the point that under the existing impoverished condition of the Empire, and the political tendency of many railway loans forced on her in the last decade, such a great expenditure was unwarranted, and her purpose would have been served by a road costing half the amount.

But the one feature which the controversy has brought strongly into the lime light is the dangerous policy to China, of entrusting the control and expenditure of loan funds entirely to foreign supervision and control. Had the complexion of the Board of Commissioners been reversed, and the majority Chinese instead of British, the former maintain that the road would have been built for half the cost, and some strength is given their argument from the costs of other roads built solely under native control. Further strength is given their side of the argument from the prices quoted for rolling stock in the Report of the Engineer-in-Chief and a comparison with other prices at which similar goods have been laid down in China for other roads. Although the Loan Agreement calls for the flotation of £3,250,000 in bonds, only £2,900,000 have been issued and the Chinese Government prefers to furnish from the Treasury any



The Builder of the Kalgan Railway

the most difficult engineering task in China

HIS EXCELLENCY TAOTAI CHAN TIEN-YU, C. E., M. I. C. E., ETC.

GRADUATE OF YALE UNIVERSITY, MORE FAMILIARLY KNOWN UNDER THE CHINESE RENDERING OF HIS NICKNAME "JIMMY," GIVEN HIM AT YALE BY HIS FELLOW STUDENTS IN 1883, AND WHICH HE CONTINUES TO USE UNDER THE STYLE OF JEME TIEN-YU

necessary balance of funds for the completion of the road, rather than sanction the issue of the £350,000 balance through the Corporation.

The next loan of importance is the Canton-Kowloon, 5%, 1907, gold loan for £1,500,000, issued at 94. The duration of the Loan is 30 years, redeemable at 102½ after 12½ years, or at par after 25 years. The same general rules for the supply of material are followed as in the Shanghai-Nanking agreement, except that instead of the Corporation receiving 5% commission on all purchases this was commuted to a lump sum of £35,000 in fuli payment of all services rendered in the construction and equipment of the road. The Chinese profited from experience on the Shanghai-Nanking construction, where the Foreign Engineer had full control over expenditures, and in the present agreement they secured for the Chinese Director General participation in the supervision of the funds. Under the agreement, the Head Office was directed by a Chinese Managing Director (appointed by the Viceroy at Canton) with whom are associated a British Chief Engineer and a British Chief Accountant. The British employees were proposed and certified as competent for the posts by the Corporation, and they could only be dismissed by mutual agreement with the Viceroy. The accounts and expenditures were to be certified by the Accountant before payment by the Managing Director. Here although China secured an advantage in handling the expenditures, the British succeeded in placing their accountant as a check on any irregularities. This Agreement was considered by British opinion as the very best yet negotiated, and held up as a pattern for all future loans. Mr. Kent in hs book on "Railway Enterprise in China," in summing up the situation, laid stress on the soundness of such terms. But human judgment is liable to err, and the result of their working out has proved a boomerang to the advocates of foreign financial control. To the intense mortification of British interests, the much abused Chinese propensity for "squeeze" has been equalled by their own chosen and accredited custodian of the national honor. Late papers from Hongkong bring the story of the trial and conviction of the British Chief Accountant of the Canton Kowloon Railway on the charge of embezzlement of funds amounting to over $20,000.

We now come to the Imperial Chinese Government Five Per Cent Tientsin-Pukow Railway Loan, issued on the 13th day of January, 1908, through the Deutsche-Asiatische Bank (German) one half, and the Chinese Central Railways, Ltd., (British) one half, for the construction of the trunk line from Tientsin to the Yangtsze at Pukow. The term of the loan is 30 years, repayable after 10 years at 102½, and at par after 20 years. The price to the Chinese Government for the first flotation of £3,000,000 was 93, and the second the actual rate of issue to the public, less 5½ points commission to the Syndicate. The loan is secured on the likin and internal revenues of Chihli, Shantung, Nanking and Kiangsu, and guaranteed by the Imperial Government. China here made another step forward towards recognition of her rights in the control of funds and construction. The construction and control of the railway is entirely vested in the Imperial Chinese Government, in addition to the power to appoint qualified German and British Chief Engineers, acceptable to the Syndicate. These in turn were under the orders of the Chinese Managing Director. In the employment or dismissal of the technical employees of the line, the Director and Chief Engineer have to concur or submit the difference of opinion to the Head Director General for decision. China also secured the privilege of appointing a European Chief Engineer to administer the entire line after construction, without reference to the Syndicate.

The absolute control of the funds rested in the hands of the Chinese Director General and through him delegated to the Managing Directors of the two sections.

There was no provision for the services of a Foreign Accountant to certify payments as in the case of the other Loans. In fact the terms were the most favorable ever conceded to China, establishing the principle that she could be trusted to spend a foreign loan honestly. British opinion was loud in asserting that the terms were too liberal, as with no check on the accounts they failed to offer sufficient guarantee for the investor. Provision was made in the Agreement, however, that an Auditor paid by the Syndicate could inspect the accounts at stated intervals, but beyond this he had no power to interfere. The Germans, on the other hand, were as loud in their praise of the terms, taking unto themselves all the credit of conceding the square deal to China for the first time in the history of foreign railway loans. And so the negotiations terminated and went into effect. China could now show to the world that her officials were fully competent and trustworthy, and with a check on the possible extravagance of the Foreign Chief Engineer in ordering materials, the Managing Directors could keep down the cost, and prevent favoritism.

(From left to right.) H. E. SHENG KUNG PAO, Vice-President Board of Communications; H. E. LI CHING FANG, Director of the Hu-Kuang Ry.; H. E. TSEN CHIN HSUAN, Ex-President of the Board of Communications; H. E. LU-HAI-HUAN, Ex-Director-General Tientsin-Pukow Ry.

But here again the unexpected happened. The Chinese Managing Director of the Northern Section was married to a German lady, and had strong Teutonic tendencies and connections. Complete harmony existed from the outset between him and the German Chief Engineer, and the work of construction was pushed ahead rapidly.

Although solely in charge of the funds, and responsible for their proper accounting and expenditure, relations between him and the Engineer were such that he permitted the latter equal participation in the control of the Chief Accountant and his assistants. The contract of engagement signed by these employees recognized the Chief Engineer as equal in authority to the Managing Director, despite the stipulation of the loan, placing sole responsibility for the funds and their accounting in the hands of the latter. So here at the outset the superior official surrendered a part of his prerogatives to a subordinate without any of the responsibility. Affairs ran very smoothly and order after order for materials was placed in Germany,

Goods of other countries received little favor from the northern authorities. It is openly stated that only certain firms had any chances for the business of the road, and it is alleged that tenders for some of the material were publicly invited in Tientsin, after the goods had been ordered from Berlin and on the way to the East. The happy concordance between the Chinese Director and his German subordinate was held up as a model for the Southern Section to follow, where opposite conditions prevailed. But the blow came and shattered this ideal, "and all the King's horses and all the King's men cannot put the pieces together again."

Following the many charges of graft and corruption against the Chinese Managing Director—which are too numerous to specify—investigation disclosed the fact that Taotai Li had annexed unto himself and his confederates the insignificant sum of Taels, 3,500,000, or roughly speaking $2,400,000 gold, or one-fifth the entire portion of the German loan. China lost no time in dealing with the matter. Punishment was meted out to the impeached official, and all those implicated with him in the frauds. In his fall, he dragged down the Director General Lu Hai-huan although it is conceded that he has no share in the misdeed of his subordinates. Chinese law could not reach his alleged foreign accomplices, so the Imperial Government had to rest content in cleaning out and chastising its own wrongdoers. German interests have stoutly protested the innocence of the Chief Engineer and other German officials, and maintain they are entirely free from any suggestion of collusion, and in fact no formal charge has been presented against them. But the Chinese have been thinking, and wonder how the Chief Engineer, after arrogating to himself equal control over the accounts, failed to discover these enormous peculations, and to bring charges against his superior through the Bank, or why the German auditor overlooked the unmistakable discrepancies in the accounts. While the Chinese are willing to accept the stigma of criminal carelessness, they cannot free their minds from the idea that although the German officials may be scrupulously upright and incapable of acquiring ill gotten gains, they are open to censure, inasmuch as the Chief Engineer having equal supervision of the accounts must have exhibited the same culpable negligence in failing to detect the frauds. As it can be fully substantiated that the German Chief Engineer, contrary to the provisions of the Loan Agreement, enjoyed equal control over the Accounting Department, public opinion will side with the Chinese contention. The situation is one which calls for something more definite than a mere protestation of innocence from German interests, as under these conditions their national honor is as much at stake as the Chinese, who have so far meekly accepted the full burden of the disgrace. It is safe to say that cordial and harmonious relations between a Chinese managing director and a foreign engineer, which throws all the purchases into the hands of favored manufacturers of any one nation, will in the future receive more careful scrutiny at the outset by the Imperial authorities.

While this situation existed at the German end, affairs on the British section progressed along opposite lines. Here the Chinese Managing Director is a civil and railway engineer graduated from an American College in 1883. His knowledge of railway matters is almost as good as that of the British Chief Engineer under his orders. Instead of harmony, discord reigned in the camp. The British Engineer, despite the plain intention of the Loan Agreement and guided by the precedent on the German section, insisted that the Chief Accountant must recognize him as equal in authority with the Managing Director. And against the positive objections of the latter, to any interference in his domain, the Engineer created the issue, which was only settled by the authorities in Peking ruling against his pretension.

Aside from this friction, matters have progressed favorably. Work on the road has been retarded and China will have to pay a little more interest, but on the other hand she is securing such low prices for materials that the saving will greatly outweigh any small increase in interest due to a few months' delay. While the Chief Engineer invariably advocates the purchase of British materials, many tenders at lower prices have been awarded by the Managing Director to American and Continental firms, and Chinese industries have been favored whenever possible. The working out of the "Pukow terms" on the Southern Section has so far vindicated China's contention that her officials are fully competent and trustworthy to handle loan funds to the best advantage of the investor and her own interests. Never before in China have bridges and rolling stock been delivered so cheaply. The same general type of goods waggons sold to the Shanghai-Nanking Railway have been purchased by the Tientsin-Pukow Director for about half the price.

And now we come to the Shanghai-Hangchow-Ningpo 5% Gold Loan of 1907 for £1,500,000, issued through the British and Chinese Corporation. This is fully dealt with under the article on that road. The moral of this story is that some Chinese are unwilling to accept a foreign loan at any price, and stubbornly resist the efforts of the Central Government to force them into line. Here the Chinese have been willing to indemnify or present the foreign corporation with the amount of their commissions for purchasing supplies rather than permit them to interfere in their affairs. The result is that under their own supervision the Chekiang and Kiangsu Railways have been constructed and equipped according to their own reports at a cost of less than $20,000 gold per mile. The foreigner cries "graft," as the reason for the desire to handle their own money, but the low cost of the roads, practically prohibit any large amount of squeeze. Between $20,000 on the Kiangsu and Chekiang Railways and $40,000 on the I.R.N.C. or $55,000 on the Shanghai-Nanking Railway is a wide difference, and if the Directors have received "official commissions" they are not above a practice prevailing in some other countries. But the critics say the money was wasted, the bridges are unsafe, the road bed is sand, the sleepers are punk, the cars are miserable and the engines will only last a few years. The proof of the pudding is in the eating. The roads are there, trains are running, so far there have been no accidents, and the Chinese are congratulating themselves on outwitting the foreigner. Some of their rolling stock may be bad, but they got just what they ordered and paid for. On the other hand some of the cars are standard German, American and British make. The tracks may need ballasting and new sleepers required in due time. Profits are rolling in and they can afford to spend some in correcting errors. To those who unfavorably compare the trains in these roads with the Shanghai-Nanking, the Chinese answer, "it is good enough for us," and we have a margin of $35,000 gold per mile between us and the other road.

This brings to the proposed Hankow-Canton and Hankow-Szechuen Railway Loans, now awaiting signature at Peking. These roads are to be constructed under a joint loan from Great Britain, France, Germany and America, and Pukow terms will prevail.

In accordance with her promise China extended the first chance to supply this loan to a British Syndicate, but H. E. Chang Chih-tung, the Director-General of the Line, having the negotiations in charge, insisted that "PUKOW" terms should be stipulated in the Agreement. To this the agent of the Corporation refused to accede, and held out for "Kowloon" terms, with their reflection on Chinese honesty. The negotiations were terminated abruptly by H. E. Chang Chih-tung refusing to treat further with the Syndicate, or its representative. He then turned to the German Bankers who were only too willing to accept these terms. So the deal which let Germany into the Yangtsze valley was negotiated and signed. This great blow to British prestige in China is therefore the direct outcome of a loan agreement in which her representative refused to cede her a certificate of character and admit the honesty of her officials, and on this rock the British and Chinese Corporation finally came to grief, and destroyed its future activity in China. During the subsequent Loan negotiations in Peking, the Chinese flatly refused to deal with their representative; British interests in China had to be taken over by the Hongkong and Shanghai Bank, and Mr. J. O. P. Bland, after a life time of activity in the East, was compelled to retire from a field in which his usefulness was ended.

In the final drafting of the Agreement, which is still unsigned, the construction of a section of the Hankow-Szechuan Line was included. Great Britain, France, Germany and

America will participate equally in the £6,000,000 issue, and materials will be purchased in the cheapest market. The issue price is to be 95, and the terms in general are the most liberal ever conceded to China, and mark the final step to a full recognition of her rights in supervision of foreign loans.

From a careful study of nearly all Chinese Railway loans, it is apparent that foreign financial syndicates refuse to accept the theory that China can be trusted to honestly administer the proceeds of a loan, and therefore trusted agents must be selected to prevent her officials squandering the funds. It is seen that in some instances this theory has been amply vindicated and on others the reverse has obtained. On the I.R.N.C. under British technical and accounting supervision, the property has rapidly increased in value, though this was due to natural trade conditions rather than to any unusual activity on the part of the foreign chiefs of departments. Even with these checks on the accounts it has been impossible to completely prevent frauds, as several years ago it is asserted that corruption existed on a huge scale. And while the provisions of the loan have operated to the entire satisfaction of the foreign bondholders, they have at the same time constituted a direct menace to the legitimate aspirations of manufacturers other than favored British firms to an equal share in the Chinese railway market. British writers point to the administration and operation of the I.R.N.C. as the model for all other roads in China. Were it not for the danger to American and Continental railway principles involved and absence of fair play to all British manufacturers, this could be conceded, and as far as the operation of the road as a public carrier is concerned the system can be approved, but when the administration of such a road bound under the clause of a Loan Agreement to have a British Chief Engineer and assistants for 45 years enters into the manufacture of cars and bridges with British Standards predominating, for the avowed purpose of compelling their use on all other roads in the Empire, then the point must be stubbornly contested, as infringing on the doctrine of equal rights and the Open Door. No one can gainsay the right of the Chinese Government to impose such standards as it considers applicable to the requirements of the country, but in such a case, they should be drawn up by a body of broadminded men representing British, Continental and American practice, and not by a group of engineers of any one nation.

It has been proved that the theory underlying a loan agreement reflecting on the integrity of the Chinese officials, by providing for foreign supervision of accounts, does not always work out as expected, as instanced by the defalcation of the Accountant of the Canton-Kowloon Line. On the other hand the contention is strengthened by the enormous peculations of the Managing Director of the German section of the Tientsin-Pukow Line, carried on successfully under the eyes of the German Chief Engineer, who had equal participation in the control of the Accountant.

Absolute control of the construction funds in the hands of foreigners has not been acceptable to Chinese ideas of economy, as evidenced in the Shanghai-Nanking Railway dispute. Extravagance is charged on one side and jobbery on the other. It is a fact that ballast for the road had to be procured at high figures, owing to the combines amongst Chinese officials and gentry controlling the properties, and it is also fully substantiated that the prices paid for rolling stock was greatly in excess of what they should have been. This agreement worked out to the full satisfaction of the foreigner, but the experience will never be repeated by China.

It is also proven that under Chinese supervision of expenditures as instanced on the southern section of the Tientsin-Pukow Railways, honesty and strict economy have prevailed to the great advantage and profit of the Chinese Government, or rather not to the exclusive benefit of products emanating from the country furnishing the loan. It is also brought clearly into the limelight, that when untrammelled by loan agreements, or interference of foreign engineers, accountants and technical staff, and China permitted full liberty to supervise and construct her roads under native engineers and directors, the result is a revelation in economy which no foreign built road has ever attained. In the building of such roads as the Peking-Kalgan, Kiangsu, Chekiang, Pinghsiang and Sunning under purely native supervision and control, China has demonstrated to the world that she is fully competent to develop her transportation facilities at figures defying foreign competition. At a cost of $20,000 to $30,000 gold per mile, there is little scope for dishonesty. The roads may not be up to accepted foreign standards, but there are many new roads throughout the world of which the same may be said, and if China is satisfied and willing to construct a cheap road at first, and improve it as receipts increase, she will only be following a precedent set by successful pioneer railway builders in all other countries.

It is evident that every loan agreement carries with it a preferential clause for the purchase of materials manufactured in the country supplying the loan, and for a 5% commission to the syndicate acting as purchasing agent. Where the foreigner has full control of expenditures and where harmonious relations exist between the Chinese Director and the foreign Chief Engineer, it follows that competition will be restricted and favored firms patronized, to the disadvantage of other manufacturers of the same nationality, not to mention the complete freezing out of any other foreign makers.

It may be deduced from the above that the only opportunity manufacturers of all nations have of competing on equal terms and conditions, is where China has absolute control of expenditures, as on the Tientsin-Pukow or Peking-Kalgan Line, or where the roads are built by private capital. All concession or loan roads are so many direct bids for a monopoly of trade to favored firms of the nation supplying the funds.

At present British, German, American and Belgian materials predominate on roads constructed under their loans. Their engineers advise purchases on the principle that the worst maker of their own country is better than the best in any other.

A rough idea of comparative costs for railways in China, built under foreign loan agreements is here given

RAILWAYS BUILT UNDER THE RESTRICTIONS OF LOAN AGREEMENTS.

Railway.	Miles.	Loan.	Cost per mile	U.S.C.
Imp. Rys. of N. China.....	600	£2,300,000		
Imp. Rys. of N. China (Ch. Gov't shares)............	600	2,275,000		
Total..............		£4,575,000	£ 7,625	$41,800
Peking-Hankow Ry........	760	£4,500,000		
Ch. Gov't assets...........	....	1,790,000		
Total..............		£6,290,000	£ 8,276	$41,380
Shanghai Nanking Ry.....	203	£2,900,000		
Ch. Gov't advances.........	....	221,373		
Total..............		£3,121,373	£15,376	$76,880
(1) Canton Hankow........	30	*£ 500,000	£16,666	$83,336
(Samshui Branch) Total amount of loan..........	30	1,100,000	36,666	183,333 actual cost.
(2) Tao-Ching Ry.........	*90	700,000	6,666	33,333
Cheng-tai Ry. (meter gauge)	160	1,600,000	10,000	50,000
Peinlo Ry................	140	1,000,000	7,142	35,710
Canton - Kowloon (under construction)............	90	1,500,000	16,666	83,333
Tientsin-Pukow...........	600	5,000,000	8,666	43,333
	2683	24,385,373	9,000	45,000

(1) * This figure is arrived at as follows: In the cancellation of the concession of the $6,500,000 paid to the American China Development Co. $3,000,000 represented the amount expended on the 30 miles of finished road, and 50 miles of earthwork. Allowing $10,000 per mile for this latter item, or $500,000, it leaves $2,500,000 as the cost of the 30 miles. As in this have been included a large percentage of preliminary and other expenses which would have been proportioned to the entire line when completed, the amount arrived at of £16,666 per mile is undoubtedly much higher than it would have been if the road had been completed under the original concession.

(2) *This is not really a loan-built road, but comes under the following heading. The loan was contracted after its completion by the Peking Syndicate.

RAILWAYS BUILT UNDER FOREIGN MANAGEMENT AND USING THEIR OWN FUNDS

Railway.	Miles.	Cost.	Cost per mile.	U.S.C.
Ch. Eastern Ry., Russian...	1600	$150,000,000 estimated.		$90,000
Shantung Rd., German.....	245	£2,664,600	£9,200	46,000
Yunnan Ry., (meter), Fr...	535	$32,216,000		60,000
Peking Syndicate, British...	90	£614,600	£6,828	34,140
(1) Kowloon-Canton, British.	22	*$13,000,000 Mex.	$600,000 Mex.	250,000
South Manchuria System, (Jap)..................	714	Estimated over $100,000,000 capital.		140,000

(1) * Of this estimate over $3,000,000 went on the Beacon Hill Tunnel. The road has between 8,000-9,000 ft. of tunnels and large reclamation. The Kalgan Road had over 5,400 ft. of tunnels, and some heavy cuts and fills, and was completed for $40,000 per mile. The comparison is merely made to show the great divergence of costs between the two most difficult roads in China.

RAILWAYS BUILT WITH CHINESE CAPITAL WITHOUT FOREIGN RESTRICTION.

				U. S. Cy.
Pinghsiang	70	Tls. 3,600,000 exp.	Tls. 51,428	$32,000
Kiangsu	36	$3,000,000 cap.	$83,333	34,000
Chekiang	78	5,000,000 cap.	64,100	26,000
Swatow-Chaochow	24	2,000,000 cap.	83,333	34,000
Peking-Kalgan	122	Tls. 8,000,000 exp.	Tls. 65,570	41,000
Sunning Ry	..	....	....	....
Tsitsinar Light Ry	18	250,000 exp.	13,888	8,676
Nanking City Ry	8	300,000 exp.	37,500	24,187

The actual amount expended is not obtainable though native reports are to the effect that all these roads have been built for less than $20,100 per mile and a balance was left in the Treasury.

The average cost of the Loan Built Roads will be considerably reduced, by deducting the large sum for the repurchase of the Canton-Hankow Concession from America, for which only 30 miles of road is allowed, but on the other hand there was some 50 miles of finished earthwork and grading included in this, as well as indemnity for loss of profits. To this should be added the financial losses on floating the loans, averaging 10 per cent, which would bring the construction cost of the roads down to a lower figure and make the general average about £8,000 per mile against say £6,000 per mile under Chinese direction. Complete and accurate data is lacking to make an exact table or estimate, and the figures given here vary considerably with actual expenditures; for instance, the Chekiang, Kiangsu and Swatow railway officials claim to have built their lines for under £4,000 per mile, but in default of actual figures, we have had to take their paid up capital as a guide.

It appears that the most costly loan built railway is the Shanghai-Nanking Road at an average cost of £15,000 per mile. (Revised figures give a final total for construction of £10,600.) The most economical of the foreign built roads is the Peinlo Line and then the Peking-Hankow Line which included the most important engineering feat in China—the bridging of the Yellow River. Between the two roads there is an actual difference of say £7,000 in favor of the Belgians but there is no comparison in the quality of the work. The American built Samshui branch of the Canton-Hankow line of 30 miles was the most costly to China, as the price includes the amount of the Loan for the purchase of the concession from the America-China Development Co. The actual cost of construction, however, was large, as alleged extravagance prevailed in the ordering of materials, and in prices paid. Naturally everything was purchased from America. The cost of this line to China, if carried to a finish at the pace set in the early days of construction, would probably have equalled the Shanghai-Nanking road, so Americans can not hope to stand on a pedestal and lay claim to any superior virtues. The point which the above table makes clear is that the cost of her 2,680 miles of foreign constructed roads including cost of loan flotations averages over £9,000 or $45,000.00 gold per mile.

The most difficult engineering railway proposition in China is undoubtedly the 122 mile road from Peking to Kalgan, where over a mile of tunnels have been pierced, and much difficult mountain bridge work and rock cuttings negotiated. The engines for the mountain section are the heaviest and most powerful in China. Yet with these high initial costs and charges the road has been completed for about Taels 8,000,000, or $41,000 per mile, or about the same as the Pekin-Hankow or I.R.N.C. The mountainous country through which the Ching-Tai railway passes is the nearest approach to conditions on the Kalgan Road. Yet we find that the Belgian engineers laboring under less difficult conditions, constructing a meter instead of a standard gauge road, expended £10,000 or $9,000 more than the standard gauge Kalgan road. It cannot be urged that the rolling stock on the Kalgan road is inferior, or the roadbed is poor. The cars have been largely supplied from the Tongshan Shops and the locomotives are Mallet type from the North British Locomotive Co., and Shay Geared engines from the Lima Locomotive Co. in addition to engines loaned from the I.R.N.C. The roadbed is rock, and well ballasted. And away below the Kalgan expenditures are the costs per mile of the Chinese built and much criticized Kiangsu, Chekiang, Sunning and Swatow lines, averaging about £6,000 or $30,000 gold per mile, but according to their own version less than $20,000 per mile.

The German-built Shantung line, 245 miles in length, cost, including interest on capital, £2,644,600 or about £9,200 ($46,000 gold) per mile. There were no steep grades or engineering problems to overcome, and in a general way the character of the country traversed is similar to portions of the Shanghai-Nanking Road.

These figures speak for themselves. They tell the story that China is forced to expend much more for her foreign built roads under the restricting terms of Loan Agreements than she would if left untrammelled in the supervision and control of expenditures. And they tell us that even after a capital expenditure of £24,000,000 ($120,000,000, gold), at the best, China has only a variegated assortment of railway cars and locomotives from every manufacturing country in the world, for some of which she has paid exaggerated prices, and many are entirely unsuited to the requirements of the traffic and must soon find their way to the scrap pile. And when the various systems are completed and joined together, there will be such a gathering together of ill-assorted and miscellaneous types of rolling stock, that interchange of cars and through freight or passenger service will be impossible, and in the end China will find herself compelled to purchase new material according to some definite standard, and relegate the old collection to purely local service on the various lines.

China is a poor man's country. All expensive and luxurious railway cars and other high grade material must be paid for by taxing the impoverished masses. China is heavily in debt and struggling hard to meet her foreign obligations and develop her transportation facilities while preserving her sovereign rights intact. Chinese officialdom may be corrupt, but it is not alone in this respect. There is not a so-called civilized nation in the world that has escaped similar charges in recent years, and for every instance of corruption in China, a counterpart can be found in other countries. The only difference is that "squeeze" is considered a legitimate perquisite in China and openly practiced by all classes. Like morality in general, it is a question of geography. In Europe and America, "squeeze," graft, corruption, malfeasance, and other similar methods of acquiring wealth, is frowned down and punished, but it is practiced just the same. China has proven to the world in her railway building that her official ideas of "squeeze" are moderate, and with all these perquisites added in, she can build roads to her own satisfaction, for nearly one-half the cost charged by foreigners.

China needs many miles of new railway which must be built for commercial and state reasons. China must borrow this money abroad as her people refuse to take up loans bearing 5% when they can make greater returns in other ways. China has demonstrated that her officials average up as honest and capable as foreigners, and all so-called checks on her control of loan funds are superfluous and an insult to her pride and standing as a nation. The security on the property, guaranteed by the Imperial Chinese Government or provincial revenues should fully insure the investor, as it does in any other country of the world. Why then should China be compelled by foreign financiers supported by their Governments to continue a system which makes her spend twice as much for her railways, and retards her progress by increasing her debts?

The major items of railway costs are lands and general labor charges, earthwork, crossings and fences, culverts, stations, administration expenses, etc., and rails, rolling stock and materials are secondary. Why perpetuate a system humiliating to a nation's pride, and doubling the entire cost of a railway for the sake of the profits on materials? By conceding to China the standing enjoyed by any little second or third rate power in other parts of the world, and accepting the Imperial Guarantee of the interest and principal, and permitting her a free hand in the construction of the roads and purchase of materials in the cheapest market, China would be able to build twice as many roads than she can under present loan conditions.

It is axiomatic that if the average cost of roads built under the strictures of foreign loan agreements, is $45,000

gold per mile, of which sum at least two-thirds are for labor, land, and supplies purchased in the country and only one-third goes abroad for materials, and serviceable railways can be constructed and equipped for $20,000 to $30,000 gold per mile when built without foreign interference, China could more than double her railway building, if unmolested in the administration of her affairs. The banking corporations would lose the 5% commissions on purchasing materials and a few high salaried employees would be eliminated. The same amount of money would be expended in the country, but the orders to foreign manufacturers for cars, locomotives and railway supplies would be doubled. What the banker, purchasing agent, and staff employees would lose would be repaid to the foreign manufacturer ten times over and in the end bring just as much profit to the banks, as though they held out for the continuance of a system in which they are at present the greatest beneficiaries.

China's credit is good. Her finances need reorganizing and it will come in time. Even under foreign financial control of all revenues her credit would be strengthened. Despite pessimistic reports of China's unstable currency and financial chaos, her bonds are eagerly accepted by the investing public at par or at a premium. This denotes a confidence in the Imperial Government guarantee, equal to that extended to other first class powers. Sooner or later reflections on her integrity through foreign interference in the expenditure of loan funds must cease. The sooner the better. If international protestations of friendship to China are sincere, and there exists a genuine desire to maintain the Open Door and further foreign trade relations, every country should subscribe to the doctrine of permitting China exclusive control of her Loan Funds for Railway purposes.

The benefits accruing to all interests are self evident, and only political objections can be raised against it. It is time China is accorded FAIR PLAY.

MEMORIAL OF H. E. TSEN CHUN-HSUAN ON RAILWAY SYSTEMS FOR THE EMPIRE

His Excellency Tsen-Chun-hsuan is a son of the late Viceroy Tsen Yu-ying and one of China's most energetic and progressive officials. He enjoys the reputation of being one of the most honest and efficient provincial rulers of the last decade. His official career began in 1892 as Sub-director of the Court of Imperial Entertainments and Director of the Imperial Stud in 1893. Appointed to in 1898 as Treasurer of Kuangtung, he rose rapidly to the Governorship of Shensi in 1900 and of Shansi in March, 1901. He was honored with the Yellow Riding Jacket in June, 1902, and transferred as Governor of Kuantung, where he put down a rebellion that threatened to assume serious proportions. From here he was made Acting Viceroy of Szechuan in September 1903, and transferred to a similar post at Canton in Nov., 1903. He was later appointed Viceroy of the Yun Kuei which he did not accept nor the subsequent honor of the appointment of Viceroy of Szechuan. For a short time in May, 1907, he held the post of President of the Board of Communications, but was immediately ordered to the Viceroyalty of the Liang Kwong. His resignation was submitted in August, 1907, and retirement into private life has taken an official from the councils of the Empire who can ill be spared. His memorial on railways is one of the best submitted, and shows a knowledge of the wants of his country far in advance of what is commonly conceded to Chinese officials by foreign critics.

Tsen Chun-hsuan has memorialized the Throne suggesting the advisability of having China's railways under proper unified control with a proper system. The Board of Communications, after having perused the memorial, by Imperial order sent in its views to the Throne. The views are divided into three sections. One.—Centre of all the railway systems in China. Two.—Four Trunk Lines. Three.—Branch lines.

I.—Centre of the railway systems in China.—It is stated that since the Tientsin Shanhaikuan Railway, the Railway carrying the mining products of Kaiping Coal Mines and Peking Hankow line are the only lines of importance at present and that Hankow should be made the centre of all the railway systems in China. Such is the majority of opinions expressed by people who talk about the railway administration of China. There are others who maintain that Hsiangfu is the best place for such a centre. From political geography these views are not to be adopted. The place which is the capital of the sovereign of the state should be the centre of the systems. In ancient times the centre of traffic was always at the centre where tribute was sent from the east, west and south and Peking should undoubtedly in any case be the centre of the railway systems of China.

II.—Four Trunk Lines.—What we call four trunk lines are—

1.—Southern.—When the Peking-Hankow Railway connects with the proposed line between Hankow and Canton, when it is completed, it will be made the Southern Trunk line by connecting Wuchang and Hankow by ferry boat.

2.—Northern.—The line to the North is one between Peking and Kalgan and regarding the proposed Mongolian Railway made by Prince Su the Board has already mentioned that the Peking-Kalgan line should be extended to Kulun (Urga) and then to Kiachta and this line will become the northern trunk line

3.—Eastern.—The line to the East between Tientsin to Hsinmintung together with the line between Hsinmingtung and Mukden which has been restored from Japan. Regarding the proposed line of the Hehlungkiang province made by Cheng Teh-chuan, the governor of that province, the Board of Communications has stated that the line should be extended to Aigun via Chiaonan, Tsitsihar. When this line is completed this may be made the Eastern Trunk line.

4.—Western.—The line between Chengting and Tayuen will be joined with the Tungpu Railway and then it will further be extended to the west with the line between Tungkuan and Lanchow as proposed by the ex-Governor of Shensi Tsao Hung-hsun and thence to Ili. When this is completed this may be made the Western Trunk line.

III.—Branch lines.—The branch lines of the Southern Trunk line.

1. Peking to Chengchow and thence from Kaifengfu, Honan, to Anhwei.
2. From Hsinyangchow to Kiangsu via Kiangpu.
3. From Hankow to Hsianfu.
4. From Wuchang to Kiangsi.
5. From Hunan to Kueichow.
6. From Canton there will be four branch lines.
   a. Canton-Kowloon.
   b. Canton-Macao.
   c. Huichow-Chaochowfu-Amoy.
   d. Wuchow-Kueilin.

All the lines in Honan, Anhwei, Kiangsu, Chekiang, Kiangsi, Fukien, Hupeh, Hunan, Shantung, Kueichow, Kuangsi and Kuangtung will be included in these branch lines.

2. Branch lines for the Northern Trunk lines.

When the line reaches Kalgan from Peking, as Cheng Hsun, the Lieutenant Military Governor of Chahar, has pointed out, there should be two branch lines, namely one to Jehol towards the east to connect Kalgan with that place and another to Suiyuan (Kukukoti) towards the West to connect the same with Kalgan and when the line reaches Kulun or Urga it will again be divided into two branches namely to Outer and Inner Mongolia. All the lines in Mongolia and Jehol will be included in the branch lines of the Northern Trunk line.

3. Branch lines for the Eastern Trunk Line.

At Tientsin.—Tientsin Chinkiang Railway via Kiaochow and Tsinanfu. At Kaopangtse—a line between Yingkow and Port Arthur.

At Moukden the line runs towards the east to join the Russian Manchurian Railway. The lines in Shantung, Moukden, Kirin and Hehlungkiang are to be included under this trunk line.

4. Branch lines for the Western Trunk line.

At Taiyuan a line to Tatung to connect with the Kalgan Suiyuan line. At Ping yang a line to Tsechow to connect with the Tsechow Taokao line. At Tungkuan a line to Loyang to connect with the Loyang Honan Railway. At Hsian a line to the North West via Pinglin to Ninghsia, another to the South West via Hanchung to Chengtu which will join the Szechuan Hankow Railway on the east and the Yunnan Szechuan Railway on the South and thence to the Yunnan-Annam and the Yunnan-Burma lines. On the West at Lanchow lines to Tsingkai (Kokonor) and Thibet will be built as branch lines. The lines in Shansi, Shensi, Kansu, Hsinchiang, Szechuan, Yunnan, Tsinghai and Thibet will be included under this Trunk line.

The order of building these lines should be arranged by considering both military and commercial convenience. On the northwest it is necessary to connect with the borders for the benefit of military purposes and also to connect with the sea coast on the south east for the convenience of commercial purposes. If provincial governments should be established for Mongolia and Thibet it will become very important to build lines to Urga and Thibet urgently and leave Tsinghai and Jehol as secondary. For the purpose of trade development on land and sea the Hankow-Canton line is the most important to be speedily completed and the Szechuan-Hankow and Yunnan-Szechuan will be placed as secondary. Recently the railway affairs in Kiangsu, Anhwei, Kiangsi and Fukien are mostly dealt with by the local natives by raising funds themselves. In Yunnan, Kueichow, Shansi and Shensi Viceroys and Governors are earnestly planning railway affairs but owing to the lack of funds they are not much facilitated. It is necessary to build railways for trade with the profit of which military lines should be built. In the north east it is easy to raise funds from the natives but in the north west it is necessary to raise foreign loans. The Board of Communications is now collecting the plans of railways from all the provinces and compiling one complete map showing all the complicated lines in one. When the affairs of the Board will be in proper working order deputies with engineers will be appointed to complete this map with a record of the circumstances and then the order of building will be properly decided. When such plans and maps are completed they will be duly sent to provinces to enable them to report on the progress.

THE FAR EASTERN REVIEW

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THE FAKUMEN RAILWAY

Probably no railway in China has received so much publicity as the projected extension of the Imperial Railways of North China, northwards to Fakumen. This matter has been presented at various times by the FAR EASTERN REVIEW, and the article published in the May, 1909, issue, fully explained the situation. In the light of subsequent events and information the facts therein presented have been fully substantiated, and upheld by other impartial writers. The following extracts from this article are given here:

"The Treaty of Portsmouth bound the signatory Powers 'not to obstruct any general measures, common to all countries, which China may take for the development of commerce and industry in Manchuria,' but Japan subsequently secured from China, in a secret Protocol to the Peking Agreement of 1905, the promise 'not to construct, prior to the recovery (by China) of the (South Manchuria) Railway, any line in the neighborhood of, and parallel to, that Railway, or any branch line which might be detrimental to the interests of the South Manchuria Railway.'

"China's rights, which were thus amply protected by the Portsmouth Treaty, were again placed in jeopardy by her own diplomats in the later agreement with Japan. With all her bitter experiences to guide her, and confiding her interests in the hands of her most experienced officials, China blindly bound herself to another surrender of rights, and paved the way for future troubles.

"One of her most skilled and astute diplomats, Tang Shao Yi, a Columbia graduate, attended the conferences with the Japanese Plenipotentiaries, leading up to the final signing of the Agreement with its secret protocol, and he was therefore in full possession of all the facts and conversant with all the points at issue. There appears to be no doubt that the full significance of this secret clause was appreciated by China, for it is part of the records of the discussions that its bearing on future railway construction in Manchuria was carefully considered. It is also recorded in the published reports of the American State Department that, when questioned by the American Minister at Peking about this self denying clause, Tang Shao Yi categorically denied its existence. Tang was subsequently appointed Governor of Mukden on the organization of Manchuria into a vice-royalty, and shortly afterwards initiated the secret negotiations which terminated in the signing of the agreement with Lord French for the construction of the Fakumen extension of the Imperial Railways of North China, and with J. O. P. Bland acting for the British and Chinese Corporation for the loan. This work was therefore carefully planned and entered into on the initiative of one of the high Chinese officials thoroughly familiar with the stipulations of the secret clause, and the storm that would be provoked by an attempt to prove its practical application to the situation in Manchuria.

"The singular fact inferred from this action on the part of H. E. Tang Shao Yi, which was a complete reversal of policy on the part of China, compels the belief that the step was taken with the express design of forcing Japan's hand and testing the strength of the Peking Agreement, for as the clause was secret, Japan would necessarily have to make its provisions public, in the event of any infraction of the terms on the part of China.

"For some years past China has endeavored to recover some of the rights signed away by former inexperienced officials, and especially to regain control of her railways, and as far as possible construct future roads with her own capital. The Imperial Railways of North China, as its title indicates, is an enterprise controlled by the Imperial Chinese Government, with a British engineer in chief, imposed by the loan agreement of 1899. It is one of the most profitable railway enterprises in the world. The line is 600 miles long, and represents a total capital investment of $49,394,426 (Mexican), of which amount $27,600,000 (£2,500,000) was secured as a loan from British capitalists in 1899 at 5 per cent interest. The balance of the capital, $21,994,428, is held by the Imperial Chinese Government and native shareholders. The ratio of expenses to earnings in 1906 was 28 per cent, in 1907, 37 per cent, in 1908, 28 per cent. The receipts last year were $11,067,677, and expenses $3,075,567, leaving a credit balance of $7,992,110, which, added to the credit balance carried forward from the previous year of $6,658,763, made a total of $14,650,875 for expenditure. After paying the fourth installment on the loan and interest, Chinese shareholders and other general expenses, and applying $3,839,288 towards the construction of the Peking-Kalgan Railway, there was still a credit balance of $6,296,215. In fact the surplus profits of this line are not only sufficient to carry on the construction of the Kalgan railway, but have also been pledged to guarantee the interest on other railway loans.

"Here is a road which not only provides for all its own improvements, branches, and all charges, but is actually building another 200 mile road, and also the rolling stock for various native roads in its car shops, and guaranteeing the interest on loans to construct others, all under Chinese supervision and free from foreign interference. The actual expenditure on capital account for the existing 600 miles of road is a little over $80,000 Mexican per mile, and at this high rate an extension of 50 miles costing $4,000,000 could readily be undertaken out of the present credit balance of the road, especially as the work would take two years to complete, and the expenditure spread out accordingly. Yet, despite the existing bitter opposition to unnecessary foreign loans, and the undoubted financial and engineering ability of the Imperial Railways of North China to carry on the work under its own supervision, it was considered necessary to build this little insignificant 50-mile extension to reverse the policy of the country and resort to a foreign loan, placed in Great Britain, and its construction contracted for by a British company.

"There is only one interpretation to this enigma. China, in her defenseless condition, could not successfully disregard Japan's opposition to the secret clause, and so adroitly laid her plans to secure powerful foreign assistance to carry her point, and ascertain Japan's interpretation of its meaning, and her future intentions. As British capital was already interested in the loan of the I. R. N. C. it was hoped that this fact in addition to the influence of the alliance would result in Japan consenting to the execution of the contract.

"The remarkable cleverness and diplomacy of Tang Shao Yi in enlisting this aid, by contracting with Lord French for the construction of the road, and with the British and Chinese Corporation for the loan, before Japan learned of his intentions, is only surpassed by the blind acquiescence in the scheme by the general public, and the acceptance of China's side of the dispute, because British interests were involved. British and American diplomats have also been adroitly led to report favorably on China's rights in the dispute, and the press generally has followed the same course.

"The refusal of the British Government to interpret Japan's attitude as threatening the doctrine of equal opportunities, and interfering with China's development has perplexed the leading British organs interested in Chinese affairs. To the disinterested observer, however, this position seems entirely consistent and comprehensible. In addition to a suspicion that the Fakumen scheme was "a put up job" to discredit Japan, China has permitted the world to gain an insight into her future intentions to prolong the railway northwards to Tsitsihar and thence on to Aigun, with a branch to Kwang-cheng-tse to connect with the Kirin Road. While Japan might generously waive her interpretation of the secret protocol and permit the extension to Fakumen, without it resulting in any material damage to the interests of the South Manchuria Railway, she would naturally view with deep concern the establishment of a principle which would ultimately menace her present strategic and commercial advantage in Manchuria. So it is quite con-

ceivable that the fair-minded, conservative statesmen at the head of affairs in London would extend their moral support to Japan in this question, and cement the alliance for powerful political reasons, rather than be made the instrument of Chinese political intrigues, or be guided by an appeal to protect a contract which was so evidently negotiated by China, for the set purpose of creating discord in the harmonious relations existing between the Allies.

"China has proposed to submit this matter along with other issues to the Hague for settlement, but Japan has refused on the grounds that it can be settled out of court through regular diplomatic channels. This would indicate that Japan is willing to compromise and permit the extension to Fakumen at least. China's rights to develop her own territory are indisputable, but in this instance China has again hampered her liberty of action by signing ambiguous agreements. The wording of the document leaves its construction open to argument, and until a compromise is effected on the definite meaning of 'in the neighborhood of, or parallel to, and branches detrimental to the Japanese road,' both sides can place a wide construction on their meaning. The best friends of China must acknowledge that she has entered the agreement with her eyes open, and fully realizing the evils that could arise from a selfish interpretation of this self denying clause. The censure if any is not applicable to Japan, but to the high Chinese officials who, having past experiences in mind, allowed themselves to set their seal to such an agreement."

In addition to the Fakumen Railway question, the Antung-Mukden reconstruction and other important issues had been on the board for a long while without any serious attempt being made by either side to settle outstanding differences and get down to an amicable adjustment and working arrangement. The Chinese were, to all appearances, intentionally delaying and postponing settlement, after Japan's refusal to submit their differences to the Hague. A change of Viceroys in Manchuria at the most critical stage of the negotiations only helped to complicate and finally bring matters to a crisis. It was easy to ferosee the end of the trouble. Any one not blinded by prejudice could foresee the humiliation awaiting China in the event of a prolongation of the situation.

The issues at stake in Manchuria were of such vital importance to China, that unusual tact and diplomacy were necessary to avert disaster. No people in the world are more sensitive than the Chinese or Japanese, and any reflection on their honor is taken keenly to heart. Yet we find that in addition to the dilatory tactics of the new viceroy of Manchuria the Chinese native and foreign subsidized organs were carrying on a persistent nagging and insulting attack on Japan and her people. Human nature is much the same the world over, and newspapers are very quick to reflect public or official opinions. If *The London Times*, with its reputation as the official mouthpiece of Great Britain, was to descend into vituperative and insulting language against Germany, it is not difficult to prophesy the result. Public opinion in America was probably more incensed against Spain by the reproduction of the scurrilous and indecent remarks of the irresponsible Spanish press than by the actual situation in Cuba.

And when a foreign paper published in Shanghai, as the acknowledged organ of the Chinese authorities, follows the same insulting line of attack on Japan, the result is the same. China has yet to learn the following quotation from Lecky's "England in the 18th Century."

"Most modern wars may be ultimately traced to national antipathies which have been largely created by newspaper invectives and by the gross partiality of newspaper representatives."

Irresponsible newspaper writers on both sides brought about the Spanish-American war, and a conflict between America and Japan has only been averted through the strong common sense of the leading men of both nations. Yet Chinese officials blindly support a foreign paper whose professed policy is to hold Japan up to the scorn of other nations, and to generally create discord amongst all others. When China permits her official documents to be first published to the world through the medium of a paper, whose existence is an insult to Japan, she has only herself to thank for the bitter animosity created. When later on she has so wounded the pride of Japan through the insults of her paid organs and the inevitable happens, then, and then only will China learn her lesson. But it will be too late.

If China has been deeply wounded in her pride, and humiliated before the world by her aggressive neighbor, she can extend a large share of her thanks to the efforts of a paper, whose insulting policy towards Japan has brought about its inevitable return. And when in the future if such a policy is persisted in, China alienates the friendship and good will of many of her best friends, she can still thank the insulting efforts of an official paper who charges mercenary motives to all those who may disagree with its ululations.

The Fakumen question has been relegated to a back seat. The Antung-Mukden crisis brought about a speedy adjustment of all outstanding differences between China and Japan. The recent Manchurian Convention between the two countries settled the long drawn out Fakumen Railway dispute as follows:

Article i (Manchuria).

"The Government of China engages that in the event of its undertaking to construct a railway between Hsinmintun and Fakumen, it shall arrange previously with the Government of Japan."

This agreement, however, is only a temporary settlement of the question, and it is bound to be reopened in another form.

CHEFOO-WEI-HSIEN-RAILWAY

(Chefoo Chining Railway Co., Ltd.)

A railway project which has been on the boards for the last three years is the construction of a road from the port of Chefoo, on the northern coast of Shantung Province, to the inland town of Weishien on the German Shantung Railway. The building of this latter road has diverted the trade to Tsingtau, which formerly found an exit in the treaty port of Chefoo, and the native merchants and Chinese officials naturally view with deep concern the growth of the exclusive German trade port and the decline of Chefoo. The situation in Shantung is almost identical in some respects as in Manchuria, where the Japanese port of Dalny is being built up by the railway company, and the treaty port of Newchwang is steadily losing ground. Formerly Newchwang on the north was the natural outlet for Manchuria, and Chefoo held the trade of Shantung. With the building of the railways and granting of preferential rights and leases of territory to Japan and Germany, the old treaty ports have been gradually overshadowed by their more favored rivals, and today Dalny has superseded Newchwang as the port of Manchuria and Tsingtau denominates the trade of Shantung to the prejudice of Chefoo. As in Manchuria where China ceded preferential railway rights to Japan and bound herself not to build any lines which might compete with the South Manchuria railway, so in Shantung China agreed that German capital should have preference in the development of the province in case foreign capital was called on. While the Fakumen railway project in Manchuria was entered into by China from purely political motives to overcome Japanese preponderating influence in Manchuria, it seems clear that no such motives underlay the proposed railway in the German sphere. However *Chinese Public Opinion*, the official native organ at Peking, stated in regard to this project under date of December 24th ulto:—

"One of the most profitable railway ventures yet proposed in China is undoubtedly the scheme for building the railway connection between Chefoo and Wei-hsien. This line will penetrate into the heart of Shantung Province and would bring to a Chinese port the produce of a very wealthy district.

'At this present we are informed that the Germans are most strenuously opposing its construction much on the same grounds as the Japanese have been opposing the extension of the Railways of North China to Fakumen and beyond.

"As a matter of fact the Chefoo line would run at right angles to the present Tsi-nan-fu Tsintau railway and would tap a considerable district which that line cannot hope to reach.

The German opposition to its construction is much of the same quality as that of the Japanese in Manchuria. Their idea seems to be that the further opening up of Shantung Province will divert the natural trade from the German port of Tsintau. This is tantamount to asserting that Germany, having leased a port in that Province and having obtained a concession to construct a certain branch of railway, has thereafter the right to close the whole province to further schemes of development, unless, perhaps, the planning of same is left in German hands to the end that they may divert the whole trade of the province to their leased port.

"This is surely equivalent to a declaration that by leasing Tsintau to Germany China forfeited the right to facilitate trade with any of her own ports in that Province. This is, on the face of it, an absurd and unreasonable contention. Great Britain would under such circumstances also have a right to demand a similar privilege with regard to Wei Hai Wai. How would Germany be able to combat such a demand, both countries having treaties under the 'most favoured nation' clause, with China?

"Surely then the owners of the province, ports in which only have been leased ostensibly merely as 'naval bases,' to the right of developing the resources of such province in whatever way they see fit.

"The line in question was sanctioned by the Throne many months ago. The money is forthcoming for its construction and everything is ready to proceed to work, but we hear the German officials in Shantung have forbidden its commencement. We hear also rumours, though we trust for the credit of Germany that they are untrue, that threats have been made that Germany will utterly ruin the promoters of the scheme and all officials who do not obstruct its successful carrying out; and have dared them to make complaint to the Throne. This sounds impossible, but it seems certain that the delay in the construction of the line does not come from Chinese sources.

"We trust that enquiry may be instituted, by the Board of Posts and Communications, which may lead to the removal of the obstruction, whatever it may be, and the speedy commencement of the construction of the line, to the benefit of the Province of Shantung and the Imperial Exchequer."

This was nearly a year ago, yet the road is still in the visionary stage. It would appear, however, that much of the delay arises from the fact that the Chinese cannot raise the necessary capital for the construction which is estimated at $10,000,000. A meeting of leading merchants in Chefoo last year succeeded in placing $1,000,000 in $5 shares, and application was made to the Board of Communications at Peking for permission to start the line. When the sum of $2,000,000 was fully subscribed, it was intended to commence operations. After all the requirements of the Central authority were satisfied, the road was officially sanctioned.

The following is a translation of the rules and regulations drawn up at the meeting of merchants with regard to the above enterprise published in the *Chefoo Yih Pao.*

1.—The corporation shall be styled as "The Shantung Mercantile Chefoo-Chining Railway Company Limited."

2.—The Company proposes to raise a Capital of $2,000,000, divided into forty thousand shares, of $5 per share, of which the first instalment of 20% will date from the 1st day of the 2nd moon and to rank as Share Certi-

ficates pending the issue thereof—30% to be raised in the following year in monthly payments, and the remaining 50 per cent in the 36th year of Kwang Hsu; said scrip to be exchanged in due course for Share Certificates, and interest to be paid thereon. To prevent abuses or fraud owners of Scrip or Share Certificates that may be lost or destroyed by fire should advertise the fact in the public press, and at the same time notify the company, who will, after the expiration of three months, should no claim be made thereon in the meantime, cause new Certificates to be issued in lieu thereof.

3.—Upon the organization of the Company the twenty Promoters shall *ipso facto* become Members of the Board to be constituted in the manner as hereunder set forth:—

(*a*)	A Director—to hold at least shares to the value of	$20,000
(*b*)	Assistant Director	10,000
(*c*)	Advisory Committee	5,000
(*d*)	Consulting Committee	2,000

Only Shareholders with the above qualifications are eligible for the Offices named at the General Meeting.

4.—The original purport of the company is to construct the line from Chefoo to Chiningchow, but owing to difficulties due to time and the lack of proper survey of the interior, the promoters deem it advisable for the present to build the track as far as Weihsien.

It is apparent however, that there is some serious hitch in the program, as no further progress has been reported.

A recent article in *The Tientsin Sunday Journal* says of this project:

"The question of a railway line from Chefoo to Wei-hsien is still a burning one among the native merchants in Chefoo, Laichowfu and Tungchowfu prefectures. A great deal of talk has been done, but no decision has yet been arrived at.

"A few months ago, a Chefoo merchant named Shao applied to the Board of Commerce to be granted the concession of this line. The Board of Commerce instructed the Governor of Shantung to make inquiries as to the methods Shao intended to adopt. The Chefoo native Chamber of Commerce and the Customs Taotai went carefully into the matter and found out, without much trouble, that Shao could only put up a ridiculously small capital, and that moreover he had really not the least idea about the concession he had applied for. His petition has therefore been rejected by the Board of Commerce, so that matters are at the same stand as they were when the question of building this railway was first started.

"A very wealthy Chefoo merchant has now come forward with a better defined and practical programme. He proposes to set the ball rolling and has offered to put up two million dollars. He has asked that the Concession be transferred to him, and he will get his brother merchants to subscribe substantial amounts, so as to bring up the total capital to a size sufficient to enable them to begin active operations.

"Governor Sun Pao-chi realizes that whatever capital the merchants may subscribe, it will be quite inadequate to cover the cost of constructing a line 700 li in length. The cost of the line is bound to reach a very high figure. His Excellency does not see how it will be possible to construct the line without the financial assistance of the Central Government. Governor Sua thinks that the best plan will be to put the scheme in the hands of the Government.

"It is now proposed that, in addition to the capital to be put up by the Shantung merchants, to apply to the Government for a subsidy to meet the balance of capital required; and to put the line under the direct control of the Board of Communications. H.E. Sun has asked H.E. Luhaihwan to draw up a memorial to present to the Government.

"The Governor agrees with the merchants, that a railway line to Chefoo is of vital importance for the preservation of the trade both of this port and the commercial centres of the interior.

"The ports of Tsintau and Talienwan (Dairen) have caused much damage to the export trade of Chefoo and Laichowfu. Tsintau has practically captured the whole of the strawbraid and raw silk trade from Chefoo; while Dairen is doing active competition in the oil trade. This competition can only be counteracted by building a railway line as soon as possible.

"H.E. Sun Pao-chi intends to do all he can to influence the Central Government in favour of this railway project."

THE WU-KUANG RAILWAY

(Wuhu-Kwangtehchow.)

This enterprise is also known under the style of the Anhui Railway Co., Ltd. It had its inception in 1906 when Lord Li Ching-fang, adopted son of the late Li Hung Chang, formed a company with himself at the head for the construction of a road connecting the treaty port of Wuhu on the Yangtsze with the town of Kwangtehchow on the Chekiang border, a distance of about 150 miles. The direction of the proposed line is about south-west from Wuhu, passing through the towns of Wunchih and Ning Kwo Fu to Kwangtehchow and thence a few miles to the provincial boundary. Here the line was to connect with a branch of the projected Chekiang Railways to Hu Chow fu, or some point north of Hangchow, thus bringing Wuhu into rail communication with the systems centering at Shanghai. The initial steps in the formation of the company were conducted quietly and the outlook under Lord Li's direction was very promising. Li Hung Chang, at the time of his death, was reputed to be the wealthiest man in the world, and the millions inherited by Lord Li were expected to guarantee the rapid completion of the new road. Under Lord Li's direction the final survey of the line was concluded early in 1907 by a representative of Pauling & Co., Ltd., Mr. Muller, a Norwegian engineer engaged, and bridge girders, rails, sleepers, etc., were ordered for early delivery. A large block of river front land was purchased at Wuhu and building operations commenced. A canal about one quarter of a mile in length was also to be built with wharves on one side for river junks to load and discharge cargo. Wuhu is the center of one of the richest rice districts in China, and is the chief port in which this staple is marketed and exported to other parts of the empire. The reclamation work at the Yangtsze terminus was commenced in 1906. It is reported that the sum of Taels 4,000,000 ($2,600,000 gold) had been subscribed. Just as work was progressing satisfactorily and the outlook brightest in May, 1907, Lord Li Ching fang, the director general, was appointed by the Throne to the post of Minister to Great Britain. From the time of his departure the affairs of the company have gone to from bad to worse, and finally the work stopped for lack of funds. Officials of the Board and engineers examined the work completed in April last and there were rumors then that permission would be granted to float a foreign loan.

The amount necessary to complete the line is estimated at Taels 5,000,000 and the Board of Communications has since urged the shareholders and Anhui gentry to raise this sum and complete the line by 1913.

There are other projected roads in Anhui province, but none of these have taken definite shape, though it is reported that a short industrial enterprise has recently purchased rolling stock for the conveyance of its products. Early in May, it was reported that the Board of Communications had cancelled an agreement concluded by the British firm of Pauling & Co. and the Director-General of the Anhui Merchants' Railway Co., Chou Hio-hsi, son of the former Viceroy of Liangkiang, Choufu. According to this agreement, the British Company had to provide a loan of about Tls. 10,000,000 and to build the various lines of railways in the province of Anhui. Delivery of railway materials and the management of the line was to be reserved exclusively to the British Company. The Board of Communications, while not opposed to the loan, rejected the condition that delivery of material and management should be exclusively in British hands.

The contract was objected to by the metropolitan officials, natives of Anhwei province.

NOTICE

Offers are invited for the property, buildings, mill, ice plant and engines formerly belonging to the Hongkong Milling Co., Ltd., and situate at Junk Bay in the Colony of Hongkong, particulars whereof are as follows:

1. *Property*:—New Kowloon Marine Lot No. 4, situate in Junk Bay, immediately outside the Lyemun Pass, within the New Territories of the Colony of Hongkong and half an hour by launch from the City of Victoria. The lot has a clear sea frontage of about 780 feet, reclaimed, levelled and walled, off which there is available draught of water to permit of easy access by large ocean going steamers. Area:—189,300 sq. ft. Held under Crown Lease for the residue of a term of 75 years from the 7th February, 1905, at an annual Crown Rent of $434, with a right of renewal for a further term of 75 years, upon certain conditions. Included in the demise is a right of user of a fine supply of fresh water from a stream adjoining the lot.

2. *Buildings*—Mill and Cleaner House, 5 floors each, 50'×140' and 15' average clear height. Engine House, 65'×30'×18' (high). Workshops, 60'×22'×18' (high). Grain godown, 156'×280'×36' (high). Flour Godown, 156'×80'×36' (high). Latrines. Oil Tank, 18' 6" (diameter)×17' (high). All built of red brick in cement mortar and completed in the year 1906. Bran godown 146'×40'×20' (high), built of timber covered with galvanized corrugated iron. 50' T head timber wharf extending 30' beyond sea wall.

3. *Mill*:—A Double Unit Flour Mill complete, with a guaranteed capacity of 1600 barrels of flour of all grades per run of 24 hours, but under favorable milling of Pacific Coast wheat will produce 2,000 barrels per 24 hours. Supplied by the Wolf Co. of Chambersburg, Pa., U.S.A., at a cost of over U. S. $75,000. Erected in the year 1906 and guaranteed of the then most modern design and full sized.

4. *Ice Plant*:—One Can Ice making Plant on A Borsig's (Berlin) Anhydrous Sulphuric Acid System, with compressor, open air condenser, liquid cooler, ice tank, cans, frames, etc., can filter, belt driven crane for moving frames with ice cans, thawing off tank with tipping device, complete distilling plant, with pipes, valves, pumps, shafts, etc., complete. Producing about 20 tons per 24 hours in blocks about 50 lbs. each. Erected in 1908 and costing about Mex. $50,000.

5. *Engines*:—Three 3-cylinder Diesel Engines supplied in 1906 by Sulzer Bros. of Winterthur: two 250 hp. each and one 150 hp. Worked for about 18 months from beginning 1907. One 100 kw. generator 250 volts and one two panelled switchboard.

Offers for the above *en bloc* or in detail should reach the undersigned, from whom any further particulars may be obtained, not later than the 31st December, 1909.

DEACON, LOOKER & DEACON,
Solicitors for the Mortgagees,
1 *Des Voeux Road,*
HONGKONG.

IMPERIAL RAILWAYS OF NORTH CHINA

It was not until 1878 that any successful attempt was made to introduce the railroad into China. It came finally with the assistance of Director General Tong King Sing of the China Merchants Steam Navigation Company and Li Hung Chang, Viceroy of Chihli. The former was interested in securing a coal supply and the latter, while previously opposed to the Shanghai-Woosung line, became interested with Tong King Sing in establishing collieries in the Kaiping district in Chihli and, between them and their friends, the Chinese Engineering and Mining Company was formed. The first shaft was sunk at Tongshan in 1878. From this point to Pehtang the nearest port available was about 30 miles. The question of transportation became vital to the success of the company and even to Viceroy Li Hung Chang the railroad now appealed strongly. After some delay a railway was sanctioned by the Peking authorities and Mr. C. W. Kinder was appointed resident engineer in charge of construction. Suddenly for some reason the approval of this line was withdrawn.

The company, failing to secure reconsideration, proceeded to construct a canal from the colliery to Lutai, the nearest point on the Pehtang River. There were seven miles between the end of the possible canal and the colliery, and to cover this distance the Imperial authorities were induced to permit the construction of a tramway of standard gauge with the proviso that mules only would be used for motive power. The standard gauge for this mule tramway was secured only after a hard fight by the resident engineer and in 1880 the line was completed, and the first permanent step taken in introducing the railway in China

Mr. Kinder did not propose to depend upon mules for his tramway for lack of persistence. He had succeeded in his fight for a standard gauge and he was encouraged to fight for a locomotive. Without consulting Peking, he proceeded to build a locomotive out of a portable winding engine and old iron picked up at the mines. It was not a fancy production but it served the purpose. Its cost was approximately 500 Mexican pesos and it was christened "The Rocket of China" on June 9th, 1881, by Mrs. Burnett, wife of the Engineer-in-chief of the company. As soon as Peking heard of this monster being substituted for the mules, an order was received prohibiting its use. It took some weeks to induce the authorities to withdraw their objection, but this was finally accomplished and "The Rocket" went into commission on construction work. This was the thin edge of the wedge that made for the general introduction, slowly but surely, of railways into China, and it is of interest to note that the success of this initial venture was entirely due to the recognition by Viceroy Li Hung Chang and Tong King Sing of the advantages of the railway for transportation purposes in opening up the rich coal deposits of Kaiping and especially so in view of the fact that each of these enterprising Chinese were personally interested in the success of the mining venture.

This initial railroad venture from the Mines to Hsukochuang was a success and two additional locomotives were secured in 1882. But Mr. Kinder saw his opportunity to extend the line. He succeeded Mr. Burnett as Engineer-in-chief in 1882 and at once began to urge the extension of the tramway to Lutai and succeeded with the assistance of Viceroy Li Hung Chang, now impressed with the value of the railroad. The Kaiping Railway Company was formed with a capital of $250,000 to take over the tramway and carry out the construction of the extension. A Chinese member of the British bar named Wu Ting Fang was given the management of the company and work was begun at the Hsukochuang end in 1886 and six months later it was completed and rolling stock, including an American locomotive and forty ten ton coal cars, purchased.

C. W. KINDER, C. M. G., M. I. C. E., ETC.

THE RETIRED GENERAL MANAGER AND ENGINEER-IN-CHIEF OF THE I.R.N.C.

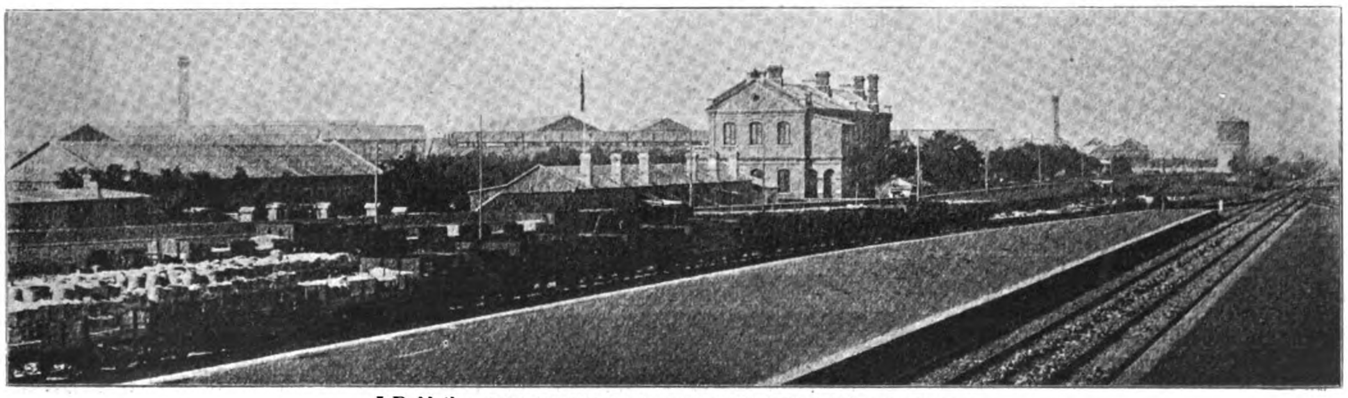
Then Viceroy Li Hung Chang became the champion of railway extension in earnest and by the time this line was completed to Lutai, the viceroy had a memorial before the Imperial authorities urging the extension of the line to Tonghu and on to Tientsin on the grounds that such a road was a military necessity and would tend to the better protection of the empire from invasion. This fortunately struck the right chord and the scheme was approved and directed executed. The name of the company was changed to the China Railway Company and a prospectus issued asking for subscriptions of Tls. 1,000,000, the Hongkong and Shanghai Banking Corporation being made bankers. This prospectus was endorsed by the Viceroy, but notwithstanding this influence it was with great difficulties that the promotors financiered the scheme. The section to Tongku was completed in April 1888; in August, Tientsin was reached; in October the viceroy inspected the entire line, and in November two trains passed daily between Tongshan. The item of cost of construction of this line was exceedingly low. It averaged about £5,000 a mile.

Permission was then asked to extend the railway from Tientsin to Tungchow, a point about 12 miles east of Peking as well as to extend the line eastward to Shanhaikwan. This roused the reactionary party at the capital who opposed the Tungchow extension on the ground that it would expose the capital to foreign attack. This fight against the extension was carried to extremes and resulted not only in blocking the decree, but by inciting the junk owners to the extent that the bridge over the Peiho at Tientsin, then being constructed to connect the foreign settlements with South Tientsin, was directed destroyed by the viceroy to quiet the people. But the extension to the east were completed to Kuyeh in 1890. In 1891 the extension to Shanhaikwan was authorized and the Chinese Imperial Administration was formed with Mr. Kinder, Engineer-in-chief, to carry on the work which was completed in 1894.

In the meantime permission had been granted to continue the railway to beyond the great wall, and in 1894, at the outbreak of the war with Japan, the line had been constructed to 40 miles beyond Shanhaikwan. The following year the war was concluded by the treaty of Shimonoseki at which His Excellency Li Hung Chang represented China. Upon his return he took up the matter of the Tungchow extension, the sanction for which had been withdrawn in 1888, with the result that it was renewed with a change of terminus to Lukouchiao and construction began in 1895. The line however was not built to Lukouchiao, but to Fengtai and from there later to Machiapu. This change was made without authorization, but was accepted by the Chinese apparently without protest.

In the meantime the line of the China Railway Company from Tientsin to Kuyeh was taken over by the Imperial Railway Administration and the shareholders of the company were reimbursed for their script by government bonds bearing five per cent. Up to this time the liabilities of the Imperial Railway Administration was Tls. 2,540,000 divided as follows:

Hongkong-Shanghai Banking Corporation advances, Tls. 1,240,000; due the Russo-Chinese Bank, Tls. 600,000, and due the Deutsche-Asiatische Bank, Tls. 700,000. To take up these liabilities and carry on the extension to Hsinminting, it became necessary to float a loan, and for this purpose Hu Yen Min, the governor of Peking and Director General of the Chinese Imperial Railway Administration, with the British and Chinese Corporation, a Syndicate formed by the Hongkong and Shanghai Corporation and the firm of Messrs. Jardine, Matheson & Co., and a loan for Tls. 16 000,000 to be used as implied in the contract: "For the construction of a railway line from Chunghousa to Hsinminting, and a branch line to Yingkow, and for the redemption of previous loans to the Tientsin-Shanhaikwan and Tientsin-Lukouchiao lines." Then followed a Russian protest on the ground that it interfered with Russian rights in Manchuria. The Russo-Chinese Bank entered into competition to handle the loan on more favorable conditions. Finally the matter was adjusted and an understanding arrived



I.R.N.C.—THE TONGSHAN CAR AND LOCOMOTIVE WORKS.

at by which Russia was practically recognized as having the right to extend her railway interests to South-Western Manchuria and by which Russia agreed not to seek railway concessions in the Yangtze valley. The reference to the construction of the line to Hsinmingting provided that it should be built by China and that European engineers be allowed to inspect the work. The loan agreement was, however, signed June 15th, 1898, and construction commenced in the autumn of the same year After overcoming many difficulties the line was extended to a point 30 miles beyond Yingkow by February 1900. From Kaopangtzu the line was then extended further for 20 miles when the Boxer troubles intervened.

In the meantime, Hu Yen Mei was succeeded by Chang Yen Mao. The latter was not in sympathy with Engineer-in-Chief Kinder and not a few attempts were made to have Mr. Kinder removed, but without success, and it must have been gratifying to this successful and enterprising engineer and railway pioneer that his services were recognized by his sovereign at this time and as a mark of Her Majesty's esteem created a Companion of the Order of St. Michael and St. George.

The boxer troubles interfered greatly with the program under way and the invasion of the allies for a time threatened international complications over the line. The council of the allied admirals gave over the control of the to Hsinminting in the latter part of 1903. An estimate of the cost and equipment of this line, a distance of 588 miles in all, is placed at about $40,000 gold a mile. The net revenue for this line has given a return of 4.75% on capital invested, for 1903; 7% for 1904; 20.75% for 1905 and 18.25 for 1906.

The connection between Hsinminting and Mukden is a narrow gauge built by the Japanese during the Russian-Japanese war and taken over in 1907 by purchase by the Imperial Railway Administration.

The building of the six mile branch from Tangho on the Peking-Shanhaikwan line to Chinwangtao, a few miles to the South of Shanhaikwang, was another addition to the facilities of the line as a result of the Boxer troubles.

Up to the end of the fiscal year September 1908 the capital authorized and created for the I.R.N.C. amounted to a total of Mexican dollars 49,594,428.57 of which $21,994,428.57 is represented by the interest of the Imperial Chinese Government and Chinese shareholders. The balance of $27,600,000 is represented by the 1899 loan of £2,300,000 from the British & Chinese Corporation, officially known as the Peking-Newchwang Railway Loan, running for 45 years at 5% interest. Of this loan, after paying the fourth drawing in 1908, there remained the sum of £2,070,000 ($24,840,000 Mex) outstanding on the 30th of September 1908.

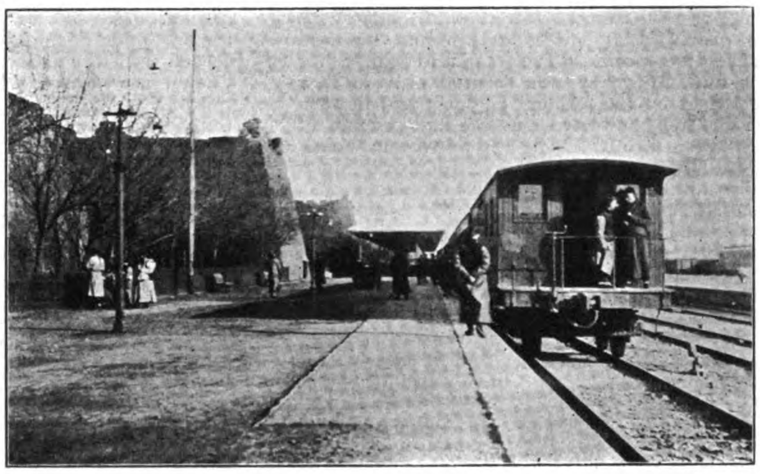
The Expenditures on capital account stand gave the road a working credit balance of $14,650,873.20.

This is accounted for by the following expenditures:

To debenture Loan, 4th instalment	690,000.00
To debenture Loan Interest	1,172,570.67
Chinese Shares and Notes	21,819.43
Reconstruction of Boxer Damage	77,305.30
Paid to Imp. Ch. Govt. to % of Peking-Kalgan Ry. construction	3,839,288.25
Hsiling Line, Working	67,425.58
Hsin Chiu Mine & Survey	204,165.03
Shipping Department	60,203.11
Tongshan College, Upkeep	70,982.94
Bonus to Employees	197,285.70
Betterments taken from Revenue for capital %	1,953,611.53
Balance on hand	6,296,215.66
	$14,650,873.20

SHANHAIKWAN BRIDGE WORKS.—Close by the line at Shanhaikwan, branch shops have been erected and designed especially for the construction of bridge work. The plant is fully equipped to cope not only with the requirements of the I.R.N.C., but also to handle the business for other roads in China. In fact the works were laid out on a large scale, hoping

I.R.N.C.—PEKING TERMINUS.



I.R.N.C.—THE OLD PEKING STATION.

Tientsin-Tonghu section to the Russians. The latter later assumed control of the Tientsin Yangtsun section but found the British established at Fengtai. The strained relations between the British and Russians was somewhat accentuated by the proposal of Count von Waldersee to give the Russians the supervision of the Yangtsun-Shanhaikwan section and the German military to take charge of the Peking-Yangtsun. The British landed at Shanhaikwan in September, and in October a Russian force arrived and claimed the line from Newchwang to Tonghu by right of conquest. Count Waldersee's order was revoked soon afterwards and by January, 1901, an agreement was arrived at by the different powers whereby the Russians retired and the Peking-Shanhaikwan section was turned over to the British the latter part of February. In March there were more conflicts of interests in Tientsin, but a clash was avoided and while the differences were engaging the British and Russian governments the British Railway Administration was busy repairing the line. In August, 1902, the provisional military government in Tientsin retired and Viceroy Yuan Shih Kai took charge and it was not until October, 1902, that the British Administration assumed charge of the Shanhaikwan-Newchwang section to be turned over later to the Chinese Imperial Railway Administration. During the period that the British Administration was in control a twelve mile branch was built to Tungchow at a cost of £30,000.

With the renewal of active construction after the Boxer troubles the line was completed at $24,000,000 to permanent way; $2,142,857.14 expended under the provisions of clause 2 of the Loan Agreement for improvements and additions to the rolling-stock recommended by the British Chief Engineer, and then estimated at Taels 1,500,000; the extension to Tungchow, $360,000; Lines under construction, $18,435,652.59; Extension to Hsiku, $305,353.89; Hsinnimfu-Mukden Line, $1,624,428, a total of $46,868,292 to capital account, leaving a credit balance of $2,726,136.38 against the total capital of $49,594,428.57.

About one sixth of the total expenditures on capital account was paid from profits, the amount at the end of September 1908 standing as follows:

Rolling stock	$584,243.92
Yard Buildings & Track	802,015.92
Tongshan Engineering School	91,268.98
Tongshan Works	476,082.71
Expended in 1908	1,953,611.53
Expended in previous years	5,812,467.47
Total	$7,766,079.00

The Revenue account of 1908 was, EARNINGS —Passengers, $4,898,632.50; Freight, $5,861-195.14; Military Traffic, $51,079.92, and Miscellaneous, $256,769.56; a total of $11,067,677.12

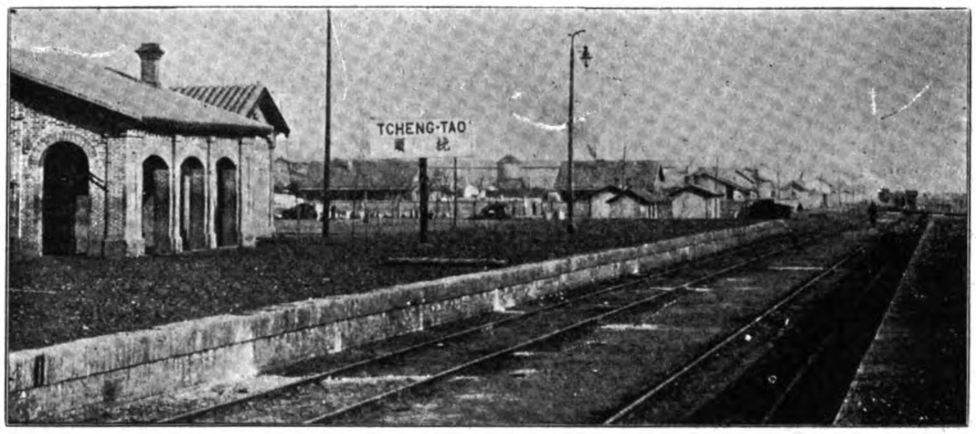
EXPENDITURES: Maintenance, $653,149.00; Rolling Stock, $1,529,285.86; Traffic $375,168.10; General Charges, $517,964.16, a total of $3,075,567.12, leaving a profit of $7,992,110.00.

A credit balance carried forward from 1907 of $6,658,763.20 in addition to the above, that with the support of the government a large industry would eventually develop, with the construction of other government railways. However, so far the hopes of the directors have not been realized, for despite official approval and support, new bridges for other roads are invariably ordered direct from abroad. This is undoubtedly due to the high cost of transportation and handling involved in shipping the steel to Chinwangtao, thence by rail to Shanhaikwan, and the subsequent rehandling and final shipment to point of destination in China. These charges effectively counteract any advantages the shops may possess from a wage standpoint, and confines their sphere of usefulness to a very restricted territory. Bridges for the I.R.N.C. and their extensions will continue to be made here, and with the proposed extensions northwards to Tsitsihar, the works may some day justify their existence. In 1907 only 1061 tons of steel work were handled, which was confined to 22 spans of 100 feet for the Liao River bridge, and the caissons. The Newchwang ferry steamer was also completed. In 1908 the tonnage of work turned out was 1,498 tons. The outlook for the future prosperity of the plant is dismal as nearly every railway in China follows its own ideas in regard to bridges instead of adopting the Government Standards. The directors of the road, or those in charge of the works, speak of the situation as regrettable, and advocate compulsory acceptance of these standards, adding that "imported girders are rarely as good as those built at Shanhaikwan, and only in Southern China can they be procured any

I.R.N.C.—TONGKU STATION

cheaper." In stating that the refusal of other roads to patronize the Shanhaikwan Works is largely due to a desire to purchase only through certain channels, the Engineers' Report for 1908 permits the public to place its own construction on its meaning. It is fair to assume, however, that the Shanhaikwan Works under the supervision and control of British Engineers follows closely along British principles of bridge building and British standards of structural steel forms. The permanent or compulsory adoption of such principles as Standard for all roads in China is of course a most laudable ambition for those having the works in charge and would result in giving British steel manufacturers a practical monopoly for the future bridge business of China, freezing out continental or American makers.

In these days when specifications can be so adroitly worked out and manipulated so that an ordinary innocent set of requirements may call for something which can only be supplied by a certain manufacturer it is hardly fair to all concerned in the development of China that any one national set of standards be permanently applied to the building of roads or bridges. I have heard it stated—of course it cannot be accepted as a fact—that British bridge designers, responsible for railway bridges in China, are rather extravagant in the weights and quantities of steel employed to carry a certain load, following the well established British desire for permanency and extra over load factor for safety. And I have heard American comments to the effect that the same bridges on which it was impossible for them to tender owing to the use of standards and sections only manufactured in Great Britain, could have been designed to carry the same load, and with as great a factor for safety, by the use of much less material and consequently at a much reduced cost. British bridge builders have erected some of the best structures in the world, and the Americans also claim to have engineered a few works of importance, and the question is of course a very delicate one to handle and comment on in a field like China.



I.R.N.C.—TCHENG-TAO STATION.

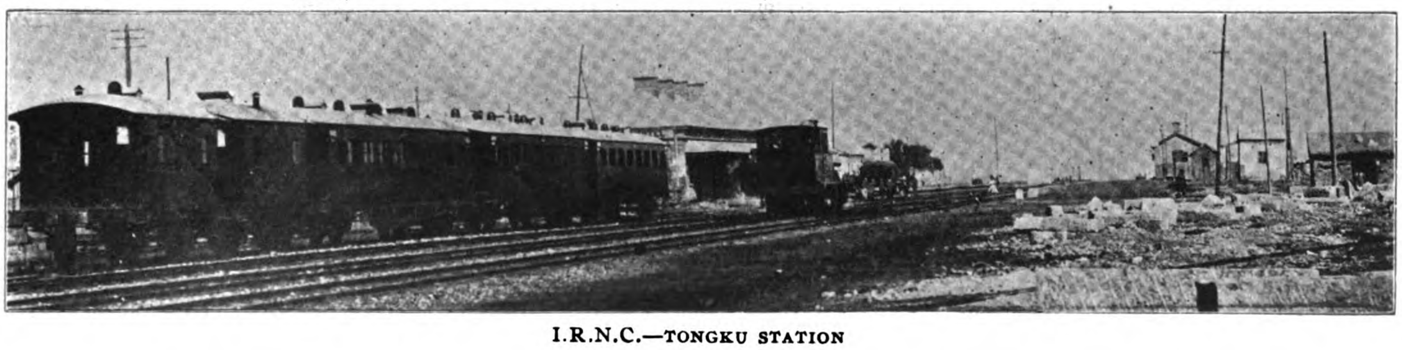
Unless a combination of both national bridge principles and steel sections are officially adopted as the standard for China, regulations favoring any one country will hardly be accepted without strenuous opposition by competitors.

The lack of orders and work for the Shanhaikwan Shops will probably result in their closing down in the near future, unless as intimated, the Tsitsihar extension of the I.R.N.C. is sanctioned and financed.

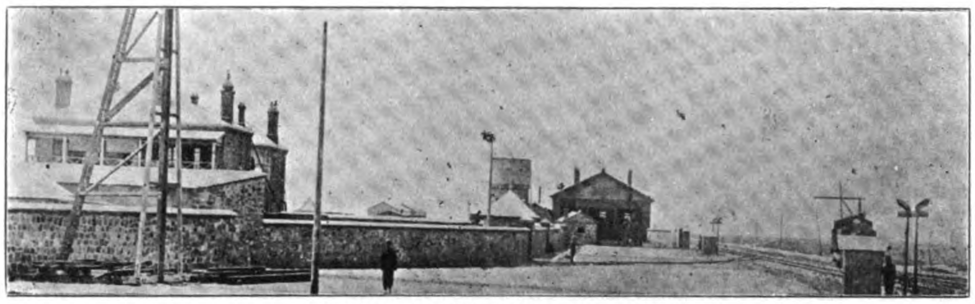
The new Liao River Bridge, 2000 feet long—the second longest bridge in China—consisting of 20 spans of 100 ft. each, was built at the Shanhaikwan Shops, and successfully erected under the supervision of the railway engineers. Concrete foundations for the piers were carried down to a depth of 70 feet below the river bottom and great vigilance and care was necessary to provide against the destruction of the work at the spring break up of the ice bound river.

TONGSHAN WORKSHOPS.—The locomotive and car shops of the I.R.N.C. are located at Tongshan and are undoubtedly the largest and best equipped works in China or Eastern Asia The illustration of the works will give a fair idea of their extent and importance.

I.R.N.C.—PEITAIHO STATION.



I.R.N.C.—TONGKU STATION



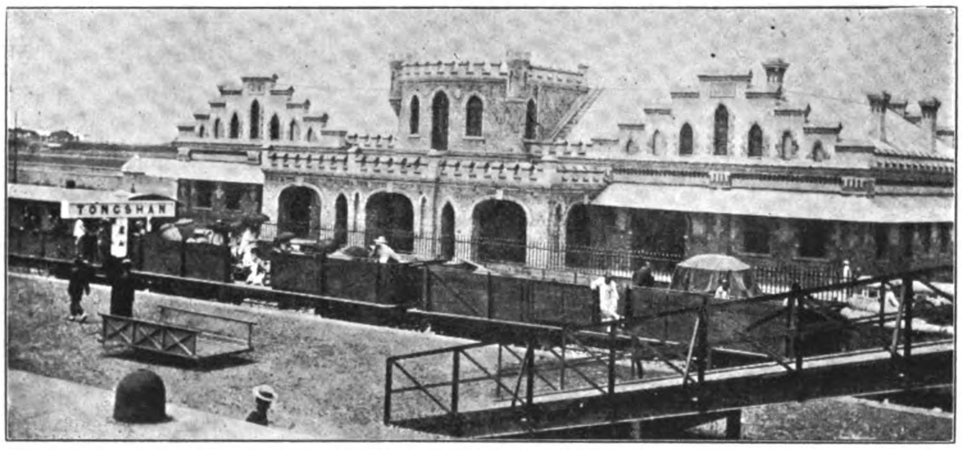
I.R.N.C.—NEWCHWANG TERMINUS

Locomotives and cars are here designed and built not only for the requirements of the I.R.N.C., but also for other roads in China. Under the supervision of the ex-General Manager, C. W. Kinder, C.M.G., and the Shops' Manager, Mr. Jamieson, the Tongshan Works have established a high reputation for the quality of work turned out, especially in the construction of cars. As will be seen from the accompanying illustrations, standard cars and locomotives for all services have been designed and built for the road and accepted as standard by the Central Railway Board for use on other roads. The work is of a high quality specially adapted for China's requirements according to British ideas and practice.

In 1907 the new works were practically completed and the old car shops were turned over to the Chinese Engineering & Mining Co. The general arrangement of the new car shops established near the main works is that of one open traverser pit affording accommodation for buildings of a total area of 140 000 square feet.

In 1908 the I.R.N.C. had a total equipment of 267 passenger coaches, 2,743 freight cars with a capacity of 53,843 tons, and 126 locomotives of a total of 5,569 tons weight. In 1907, the car shops turned out 223 new cars for the use of the I.R.N.C. of which only 3

I.R.N.C.—NEWCHWANG STATION



I.R.N.C.—TONGSHAN STATION

were for passenger service, and 163 cars were constructed for other roads.

In 1908 the works completed 100 cars for its own service, and in addition constructed the following cars for other roads:

KALGAN RAILWAY:	
Composite Coach	1
Pony cars	26
Pig cars	10
30 Ton Covered Goods Cars	4
30 Ton High Sided cars	29
30 Ton Low Sided cars	29
KIANGSU RAILWAY:	
30 Ton Low Sided Cars	10
YUEH HAN RAILWAY:	
30 Ton Low Sided Cars	20

There was also in process of construction for 1909 delivery, 24 cars for the I.R.N.C. and 52 cars for the Kalgan Road.

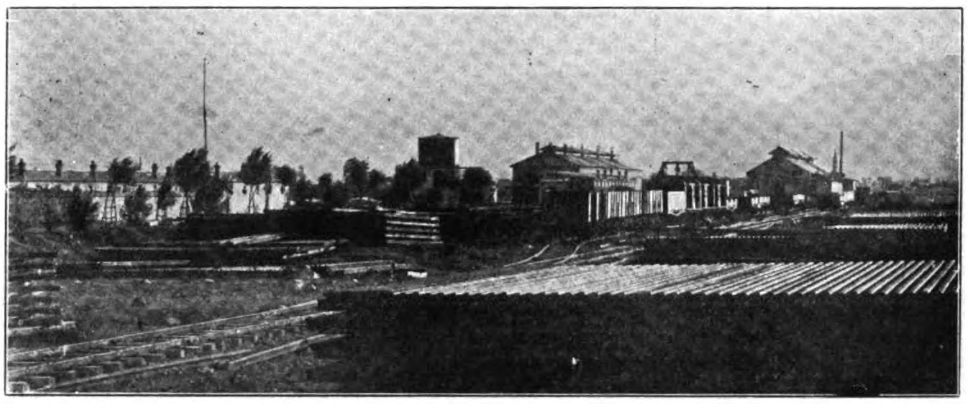
The prices charged for this work are said to defy competition, but despite this advantage, the cars are not accepted by all roads in China. As noted above in regard to the bridge works, British ideas, British standards and British principles predominate in all work turned out by the Tongshan shops. Through closer intimacy and contact with the authorities at Peking, and the fact that all profits of the undertaking go to swell the government revenue, those in charge of the Tongshan shops have influenced the adoption of their cars as standard for all of China. Sooner or later order must come out of the existing railway chaos, and China compelled to follow some standard practice, so that interchange of freight and passenger cars can be carried out on various connecting roads. On these standards will depend to a large extent the future control of the railway market of China. At present Great Britain leads. With British Engineers controlling the largest government car works in the Empire and constructing cars for other roads, British railway principles are in a fair way to become standard and dominate the field.

Most of the locomotives in use on the I.R.N.C. have been secured from British makers and naturally have given great satisfaction. Some American locomotives have also been purchased and have naturally given great trouble. In fact I know that the working of British and American engines on this road has been employed to influence the acceptance of British tenders for other roads. Whereas British engines, on the I.R.N.C., have always given every satisfaction, the American engines, it is urged, spent a great deal of time in the shops under repair and costing much more for running expenses than the British ones.

With the complete indifference of American manufacturers to this great field, and their refusal to look the situation square in the face, there is only one termination to the unequal contest. With British, German and French engineers insisting that the worst make of their own nationals is superior to the other fellow's and any of them better than American, it is difficult to see what the latter is going to get out of the field. Only when Chinese roads are untrammelled with Loan Agreements, has American material stood a chance, and aside from this, whatever progress has been made to date with American cars and rolling stock in China is largely due to the push and hustle of the Japanese.

It is a foregone conclusion that the ideas of the British managers of the I.R.N.C. will ultimately influence the Central Railway Board's selection of permanent standards for the Empire.

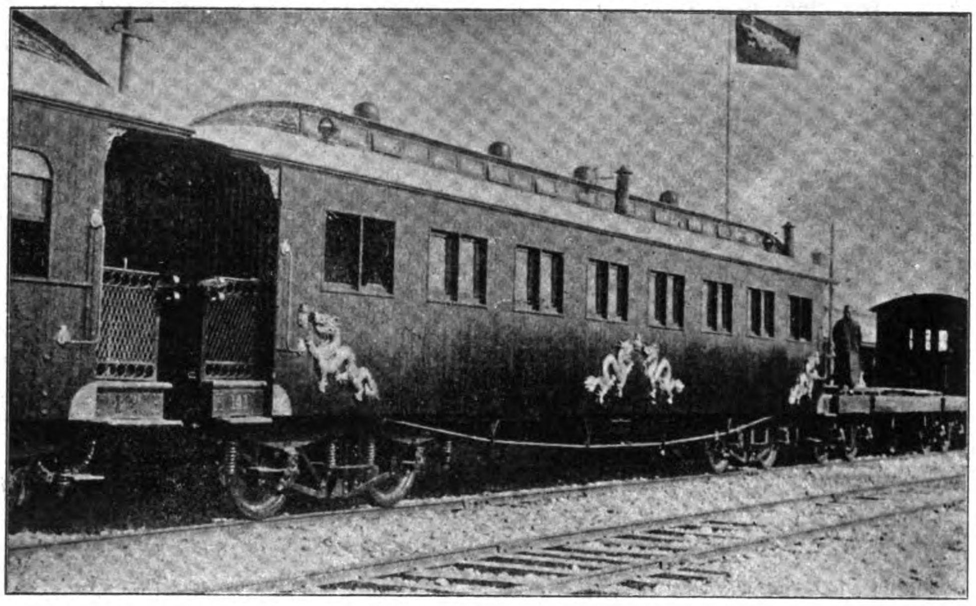
I.R.N.C.—TIENTSIN SETTLEMENT STATION



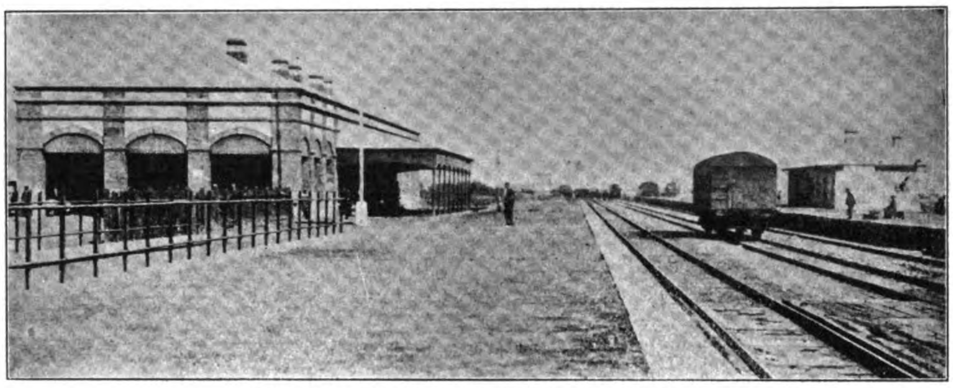
I.R.N.C.—SHOPS AT TONGSHAN

TONGSHAN RAILWAY AND MINING COLLEGE.—One important development of the Imperial Railways of North China is the Railway and Mining College at Tongshan. The following remarks on this institution from the Customs' Report of Tientsin are interesting:

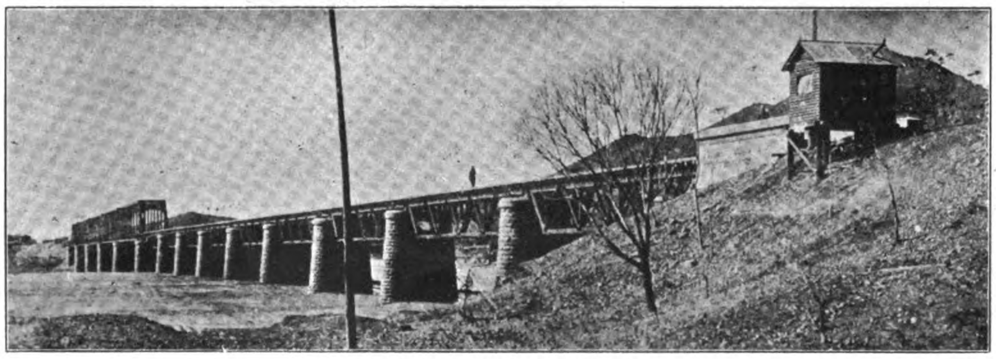
"The aim of the Chinese, which has lately become increasingly manifest, to develop their country's resources and administer and operate its public conveniences, as far as possible, by the work of their own people, is one which must meet with sympathetic recognition so long as it does not lead to a too hasty cutting adrift from Foreign aid in the establishment and conduct of industries and undertakings, for which China is still a new field. The preparation of Chinese by sound technical education, abroad or at home, to fill, when thoroughly fitted, the more responsible positions in connexion with railways and mines is a work of the utmost importance; and the establishment at Tongshan, in March 1907, of a railway engineering and mining college for Chinese students is a step in this direction which should not go unrecorded. Previous to 1900 a college for instructing students in railway engineering had been in existence at Shan-hai-kwan; but the present institution is on a larger scale, and consists of a set of handsome red brick buildings with boarding accommodation for 160 students, who are, as regards discipline and domestic matters, controlled and superintended by a Chinese official, who is styled Proctor. Besides the dormitories and living-rooms for the students, the college compound contains numerous lecture rooms, as well as residences for the Foreign teaching staff. This staff consists of four professors or lecturers, all of whom are British. There are at present 120 students (ages, 18 to 35), and it is said that for the 40 vacancies shortly to be filled there are 700 candidates. This number will probably be reduced to 400 by the "qualifying knowledge of English" and "pass the doctor" tests. The keenness to enter the college thus shown must, however, perhaps not be made too much of, as the students are not only boarded and kept at the college free of expense, but are, besides, given pocket money, while a career in the railways or mines of China is practically assured them at the end of their college course. This course is a four years' one, and includes practical work in addition to lectures and examinations. Football in the winter, and in the summer lawn tennis and swimming—this latter in a fine bath specially built within the college grounds,—are keenly taken part in by the students. The college owes its establishment to the forethought of H. E. Yuan Shih-kai, lately Viceroy of Chihli; and it is supported by the Imperial Railways of North China and the Chinese Engineering and Mining Company, the mining company contributing four-fourteenths of the expense and the railway ten fourteenths. It is probable that this college will serve as a model for other similar institutions which will in time be started in other parts of China, as already during the past year various interested Chinese officials have paid it visits of inspection. A common drawback to the full efficiency of institutions of this kind in China is the tendency of students, in their haste to begin to earn a living, to leave them too soon and go into the world with only a smattering of knowledge or with a very inadequate preparation for their work. It is hoped that the provision made for the maintenance of students while in college will minimise this tendency, so that the institution will send out men fully equipped for their work."



I.R.N.C.—SALOON CAR FOR THE IMPERIAL FAMILY BUILT AT THE TONGSHAN WORKS



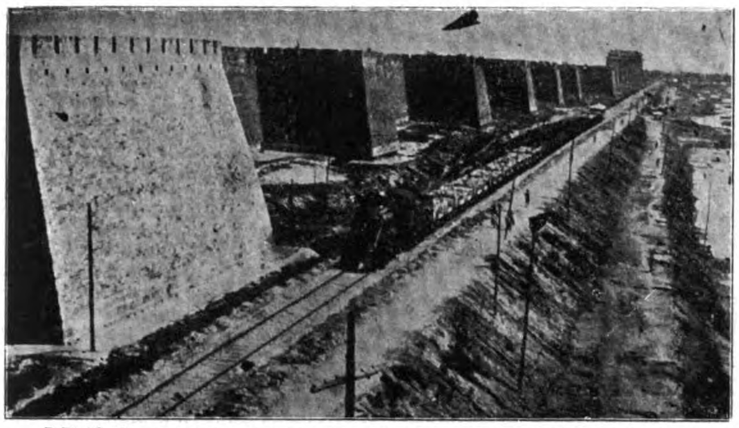
I.R.N.C.—TIENTSIN NATIVE CITY STATION



I.R.N.C.—LANCHAU BRIDGE

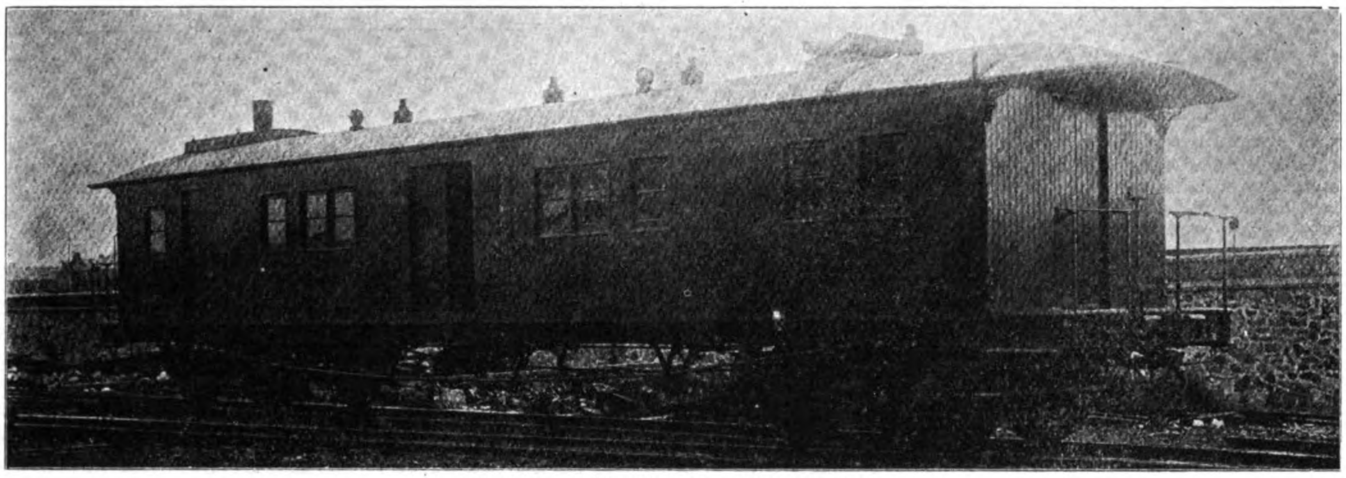
As in the case of the Imperial Maritime Customs, where Great Britain exacted a promise from China that as long as British trade predominates, the Inspector General shall be a British subject, so in the case of the Peking-Newchwang Loan Agreement, the financiers provided for British employees during the currency of the Loan. The term of the loan is 45 years, repayable in 40 equal annual instalments commencing with the 6th year, and provision is made against the possibility of China redeeming or converting the loan.

Clause 6 of the Agreement stipulates that the Chief Engineer must be a British subject and the principal members of the railway staff



I.R.N.C —ALONG THE WALLS OF THE TARTAR CITY, PEKING

I.R.N.C.—HSINMINFU STATION



I.R.N.C.—55′ BAGGAGE AND MAIL CAR

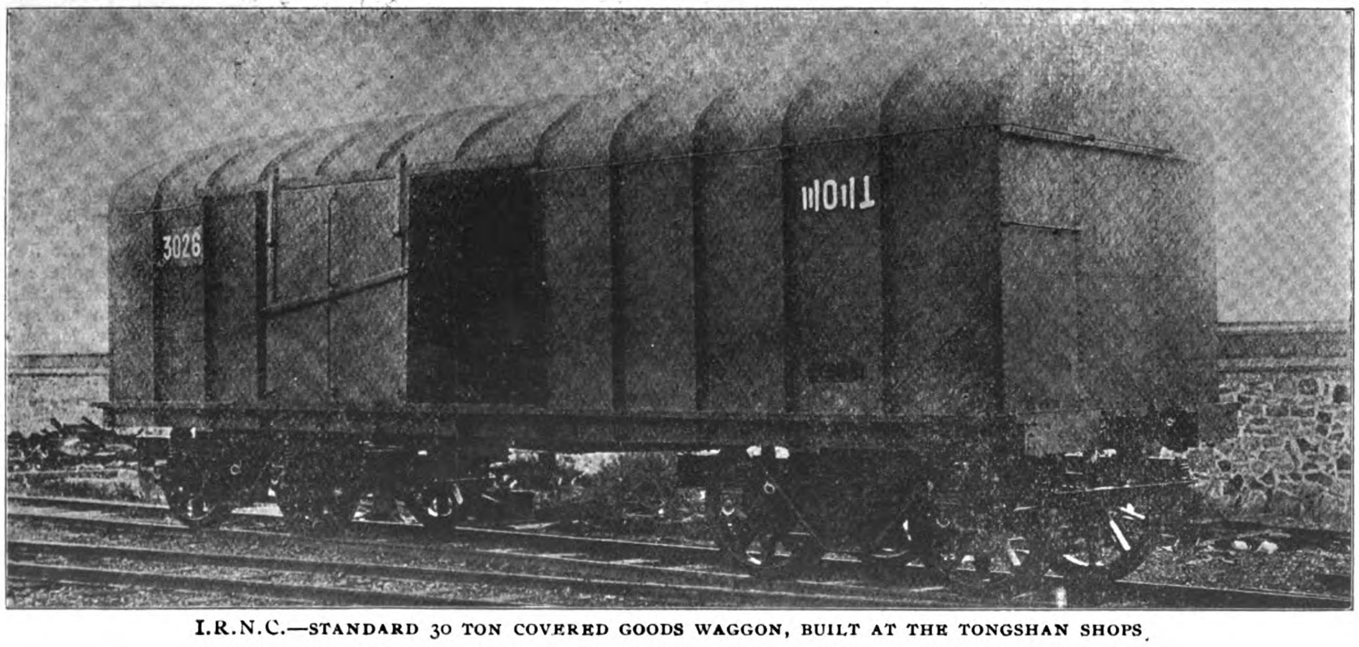
and chief accountant must also be Europeans, and they can only be dismissed in the event of their misconduct or incompetency, and then only after consultation with the Chief Engineer. Provision is made for the appointment of competent Chinese to responsible positions.

The British principal of the Engineering College was engaged in 1905 under an agreement with the Railway which allowed of three months' notice on either side to terminate it. Without any reference to the Chief Engineer, the Directors of the Road last year gave the principal the usual 3 months' notice and a storm of criticism was the result. The dismissal of several other employers without consultation with the Chief Engineer occurred about the same time, and the feeling ran so high that the British Secretary for Foreign Affairs was requested by a member of Parliament to make inquiries about the matter, and prevent persistent violation of the Loan Agreement.

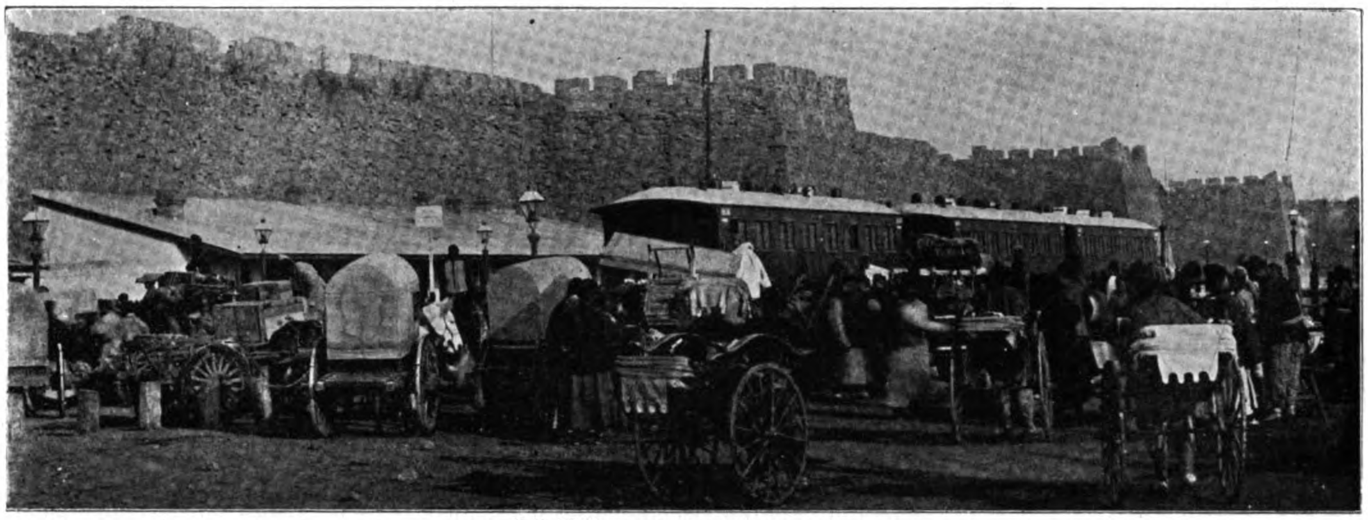
Under the late regime of H. E. Chen-pi as head of the Railway Board, matters reached an unpleasant crisis, resulting in the resignation of Mr. Kinder after 30 years' distinguished services to China.

The reason for his resignation given by Mr Kinder was simply that of age, and a desire to return to England. It is well known, however, that his resignation under the circumstances was inevitable. British interests contend that he was deprived of all real authority, objectionable contracts entered into without his knowledge binding the railway for terms of years, and trustworthy English employés summarily dismissed without reference to him, so that his position became intolerable.

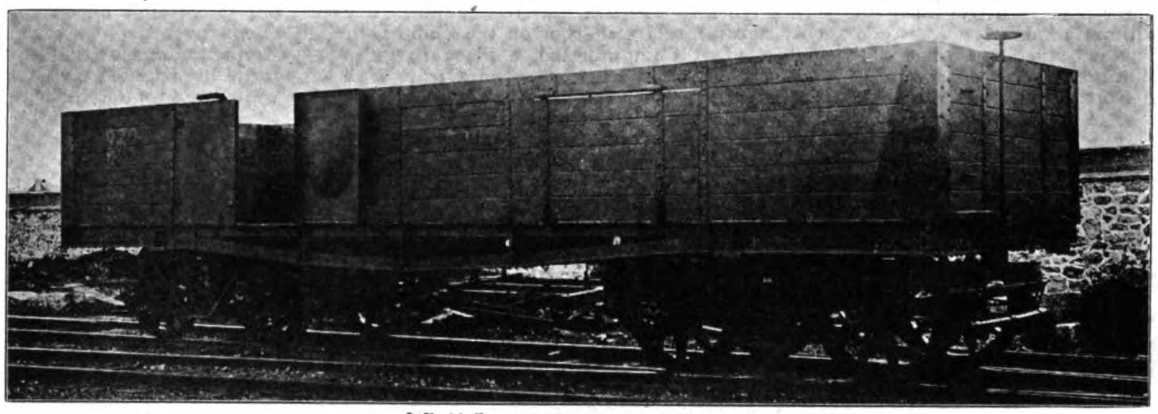
British opinion was greatly agitated over the apparent intention of the Chinese authorities to override the Loan Agreement, but the answer of China was well taken. All the provisions of the Loan were entered into to safeguard the annual repayment of principal and interest. When it became apparent that the enterprise was on such a solid financial basis that the annual profits of the road were sufficient to redeem the outstanding portion of the loan in three years, and that out of these surplus profits the construction of the Kalgan Road was undertaken, there were some legitimate



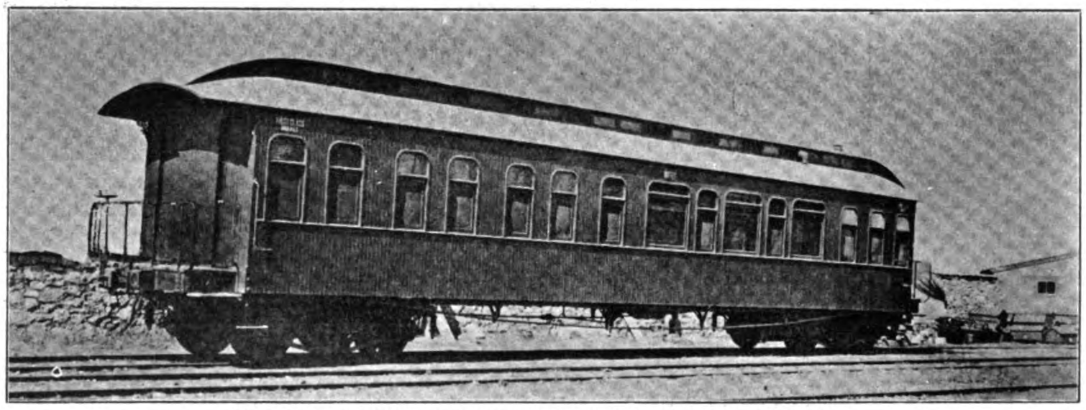
I.R.N.C.—STANDARD 30 TON COVERED GOODS WAGGON, BUILT AT THE TONGSHAN SHOPS



I.R.N.C.—OLD PEKING STATION



I.R.N.C.—STANDARD 30 TON CAR



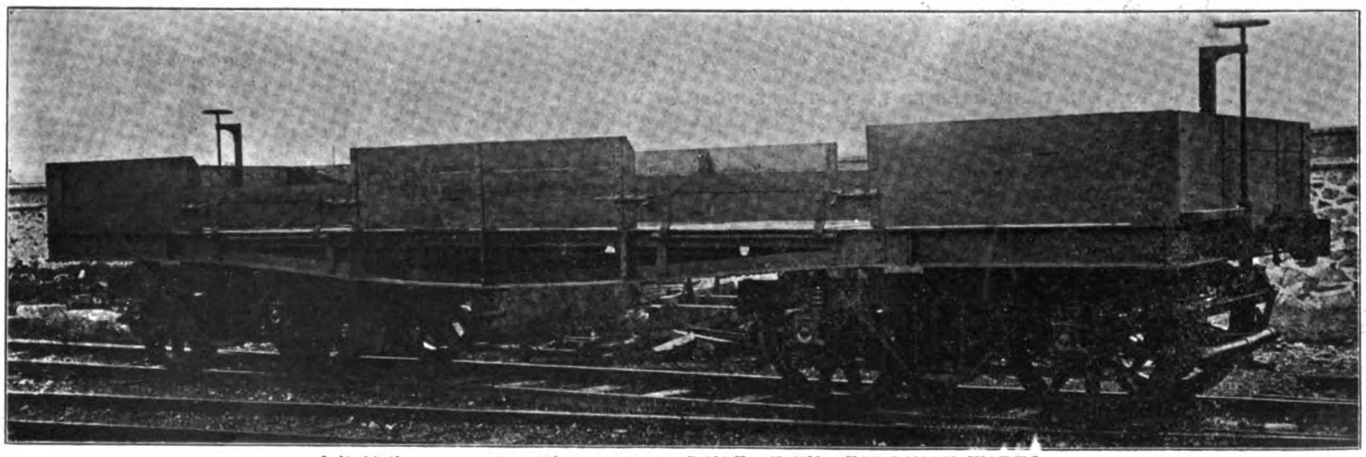
I.R.N.C.—BUFFET AND DINING CAR BUILT AT TONGSHAN

reasons for the Chinese exercising greater control of their own property.

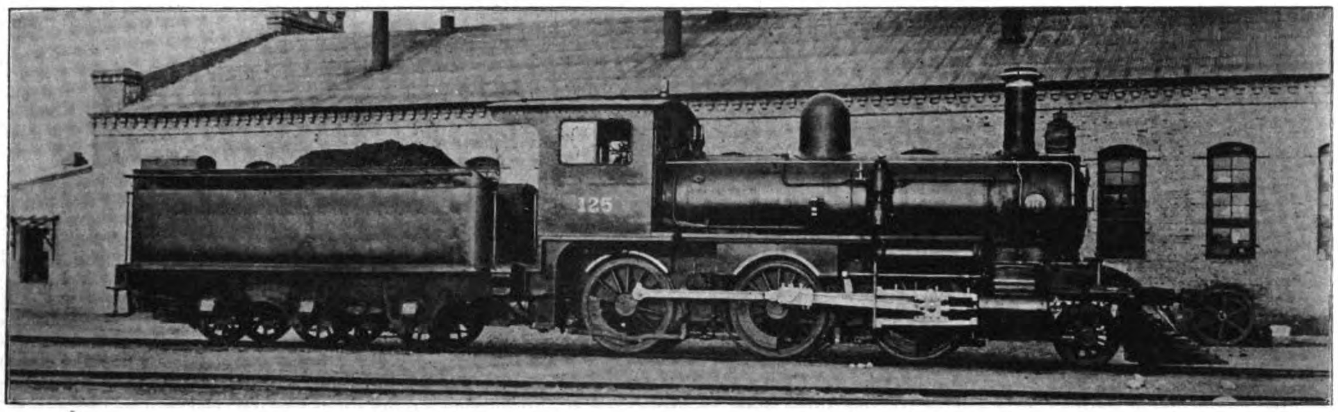
As the Imperial Railways of North China are conceded by all authorities to rest on a firm financial basis, and an increase of profits may be expected rather than the reverse, and as only the provisions of the Agreement impede the present repayment of the Loan, the holding out by the British engineer to the strict letter of the agreement reflects a lack of confidence in China's ability to run the road, without his assistance. This inference is of course resented by the Chinese. Mr. Kinder's attitude in denying to them the right to exercise any voice in the control of the road unless sanctioned by him, deeply wounded their pride and only helped to make him intolerable to the authorities.

As the British Loan participation in the capital of the road only exceeds the Chinese share holdings by $5,705,572 Mexican, there is little chance that they will intentionally weaken its financial standing or relax in efforts to increase profits. With these facts in mind any attempt by British interests to compel China to live up to the hard and fast provisions of the Loan, is accepted by the latter as an attempt to denominate the railway regardless of China's equity.

The situation is of peculiar interest to all other nations. If China submits to the dictum of an aggressive British Director and Chief Engineer or fails to assert her control over the property, British railway principles and standards will be forced on the Central Board for other roads in China, to justify the upkeep of Tongshan Car and Locomotive Works.



I.R.N.C.—30 TON LOW SIDE CAR, BUILT AT THE TONGSHAN WORKS

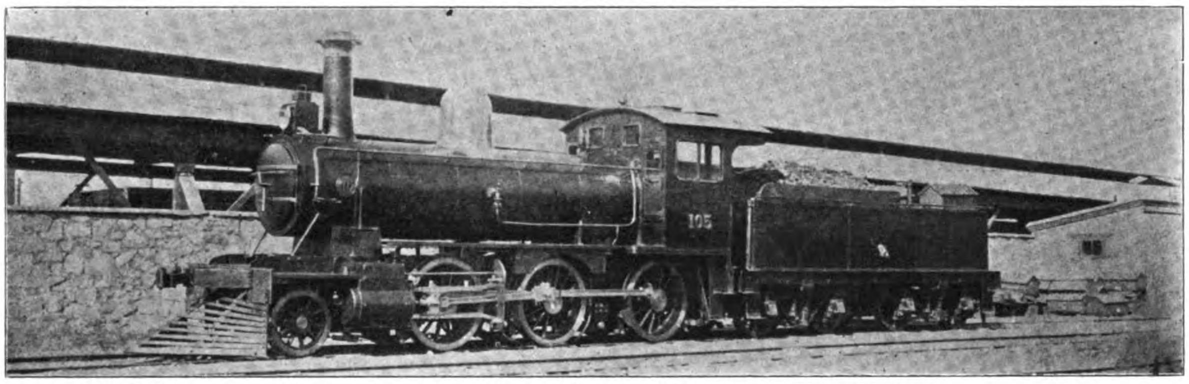


I.R.N.C.—STANDARD BOGIE LOCOMOTIVE—19″×24″ CYL.

CHINGWANGTAO

THE ONLY ICE FREE PORT OF NORTH CHINA

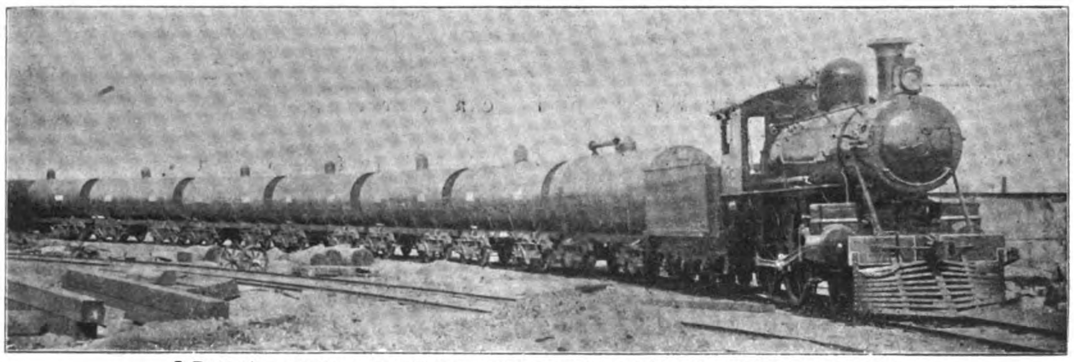
No article on Chinese Northern Railways would be complete without some reference to the port of Chingwangtao and its commercial and political significance. With the rivers and smaller harbors of North China frozen over for at least four months of the year, a serious handicap is placed on trade and the profitable operations of railways serving that part of the country. Tientsin, the great northern mart of China, the gate to Peking and outlet for the vast trade of the Northwest and Mongolia, is located on the Haiho, a river which at its best can only accommodate small coasting steamers with a draft of 14 to 15 feet. In 1908, out of a total number of 788 vessels entering the port at Taku, 511 went up the river to the Bund. For three or four months of the year Tientsin is closed to navigation by ice and trade comes to a standstill.



I.R.N.C.—STANDARD MOGUL ENGINE 16″×24″ CYL—4′ 6″ WHEELS BUILT AT TONGSHAN WORKS

Newchwang, the natural outlet for the trade of Manchuria, located some miles inland on the banks of the Liao, is similarly situated. As soon as the freeze comes both of these important centres are closed for business. Dairen, the only ice free port on the Eastern half of the gulf, has superseded Newchwang as the distributing center for the trade of Manchuria.

But Dairen is leased to Japan and is being developed to further the interests of the South Manchuria Railway and at the best it could not bring relief to Tientsin and the capital. The only natural ice free harbor on the Chihli Gulf is located at Chingwangtao, a place 10 miles west of Shanhikwan where the Great Wall terminates, 5 miles from Tangho, the station on the line of the Imperial Railways of North China, 165 miles from Tientsin, 251 miles from Peking and 272 miles from Mukden. At these distances from the trade centers of North China is situated the only open port through which the country can be served for four months of the year. As late as 1898 its importance was recognized and it was opened to trade as a treaty port, although at the time it was only a little fishing village. Considerable prominence was given the new port during the Boxer troubles as it was employed as the landing place for the foreign troops. Some initial steps were then undertaken to improve its facilities, but it was not until the Kaiping Mines were taken over by the Chinese Engineering & Mining Co. in 1901 that any serious attempt was made to make the port the real outlet for the winter trade of the Northern country. The necessity of having an assured outlet for the products of these mines compelled the Mining Company to purchase the land in the vicinity of the port and proceed to improve it with its own funds.

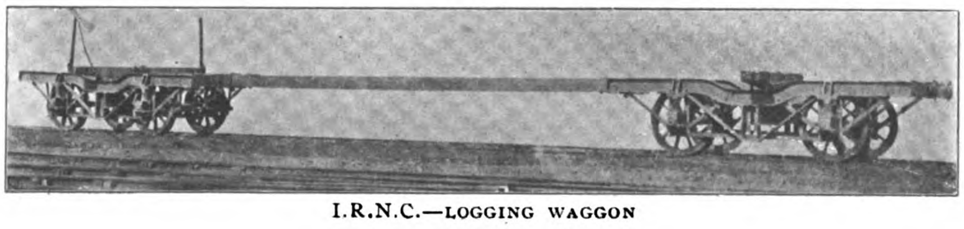


I.R.N.C.—30 TON OIL TANK CARS BUILT AT THE TONGSHAN WORKS

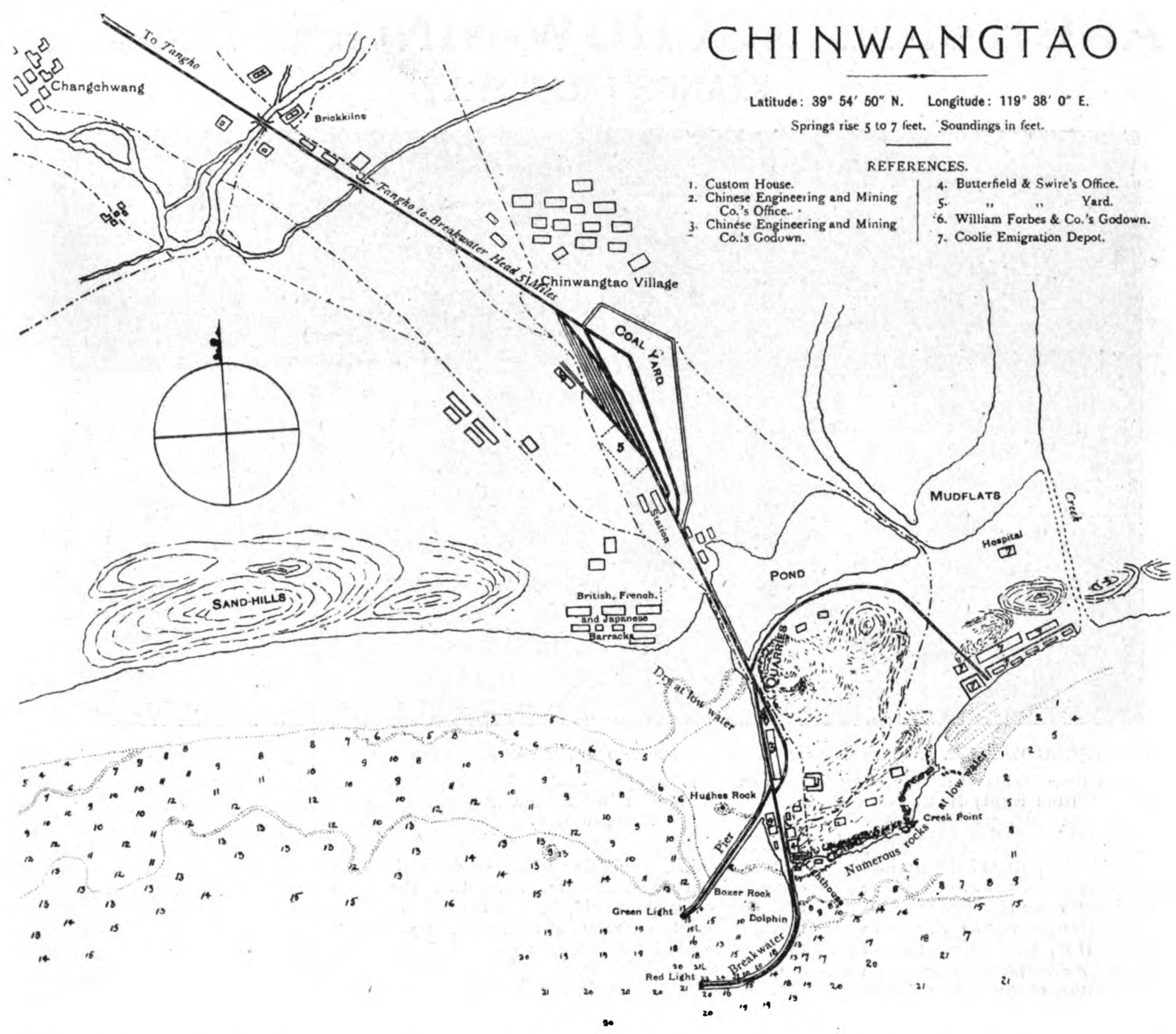
A pier of 350 ft. long capable of berthing several ships and a breakwater of over 1400 ft. was constructed, and suitable godowns and other buildings erected A complete description of the work was given in the FAR EASTERN REVIEW of May 1906. Dredging operations have been completed, increasing the depth to 25 ft. alongside berths. The following is an extract from the Review of May 1906:

"The Chinese Engineering and Mining Company, Ltd., owns the land in the vicinity of the port, and has constructed a breakwater and pier for the accommodation of shipping. At present six berths are available, the approximate depths of water being as follows:—

	Low Water	High Water.
Alongside pier (length 300′)	16′	21′
Alongside breakwater (length 1300′)	20′	25′
	13′	23′
	17′	22′
	16′	21′
	14′	19′



I.R.N.C.—LOGGING WAGGON



"Dredging operations are in progress with a view to increase the depth to 25' alongside berths. There is good sheltered anchorage in The Roads.

"The company's branch line to Tongho Junction connects the pier and breakwater with the main trunk line of the Imperial Railways of North China (Peking to Newchwang) and trains from the harbor are run to connect with all mail trains. Cargo is loaded direct from the ship's holds on to cars and *vice versa* so that a minimum of handling and consequent freedom from loss and damage are ensured.

"Chinwangtao is the natural distributing centre for the Northwest part of the great province of Chihli. The facilities, resulting from the company's liberal expenditure of capital, for the rapid and economical handling of cargo, have caused Chinwangtao to become also a formidable rival for the trade hitherto shipped through Tongku for Tientsin. A considerable portion of this trade throughout the year now passes through Chinwangtao, whilst during three months of winter, when the Pei-ho River is closed to navigation, the whole trade of Tientsin is carried on without interruption through this channel.

"Godown accommodation and covered storage are obtainable.

"The facilities for quick despatch may be gauged from the fact that a steamer was recently loaded with 2400 tons of coal in 13 hrs. There are three steam cranes to lift up to five tons, and arrangements can be made to lift weights of 15 tons. The expense, delay, and damage entailed by the lighterage of steamers which must be encountered at Taku Bar are here entirely obviated.

"The great increase of trade year by year has induced the Imperial Maritime Customs to specially erect a fine custom house with a deputy commissioner in charge, and to open a Haikwan Bank for the convenience of local consignees."

However, in spite of the excellent advantages afforded by the port, at an expense of over $1,100.00 gold, Chingwangtao has not developed according to expectations. As a coal port and a winter jetty for the north of China, it still maintains its supremacy, but the Tientsin merchants fail to avail themselves of its advantages for general trade in winter, preferring to rush cargoes in and out of Tientsin, just before the freeze and after the thaw. In 1908, 176 steamers entered and cleared from the port representing a tonnage of 279,095. The exports from the port are largely the products of the Mining Company, which included, in 1908, 211,565 tons of coal, and 1,623,560 fire brick.

It would appear reasonable to assume that the Chinese Government would lend every encouragement towards the development of this port, as an offset against Dalny. Newchwang's trade prominence in Manchuria has been gradually won over by the Japanese port, and her merchants are raising the cry of discrimination in freight rates. The Chinese Government, however, instead of assisting in developing one good central ice-free port for the service of the entire north, is bent on creating another which will be the terminus of the Imperial Railways for North China, and the Chinese outlet for the grain trade of Manchuria. To this end a new port for Manchuria has been proposed and is actually being surveyed at Hulutao 7 miles from Lienshan, a station on the Imperial Railways of North China, which is 94 miles nearer to Moukden than Chinwangtao and 70 miles nearer than Dairen. The harbor is situated near a fertile grain-growing district, and in the neighborhood an exceedingly good quality of coal is found, at present only worked by Chinese methods. This winter has not been severe enough to test whether the proposed port is free from ice, but the natives of the place state that it is. The fact that there is 30 feet of water at low tide and a rise of 10 feet at spring tides almost confines the natives' statement in itself. A breakwater will have to be built as a protection to the south-west winds of summer, but otherwise the harbor is said to be naturally complete. Besides being a port which would accommodate ships of great size and draught, the establishment of Hulutao would be obviously of great advantage to the Chinese, as it would enable them to have an excell nt gateway to Manchuria, open all the year and under their own control. It would undoubtedly deprive Chinwangtao of its extra-mural trade, but would hardly affect its trade in the province of Chihli.

The construction of the proposed Chinchowfu Tsitsihar-Aigun line by China, tapping the trade of Eastern Mongolia, and the demand for an ice free port under Chinese jurisdiction for the regions served by the Liao River, and the Imperial Railways of North China, compels the construction of such a port as a commercial and political necessity for China. If as reported there are 30 feet of wat r at low tide, its advantages over Chinwangtao are obvious. However, it will be some years before the volume of trade will justify the enormous expense attached to the improvement of the port of Hulutao, and if the Government would extend more encouragement to Chinwangtao the proposed port would be superfluous

SHANGHAI-HANGCHOW-NINGPO RAILWAY

KIANGSU RAILWAY

KIANGSU RAILWAY: THE CHINESE ENGINEERS WHO BUILT THE ROAD FOR LESS THAN $20,000, GOLD, PER MILE

(3rd from right) MR. HSU WEN CHEOUNG, Chief Engineer.—(1st from right) MR. CHU, Divisional Engineer.—(4th from right) H. E. JEME TIEN-YU, the builder of the Kalgan Railway and Consulting Engineer to the Kiangsu line.

Ten years ago, when the Battle of Concessions was at its height in Peking, British interests were fully alive to the great value of a line connecting Shanghai with Hangchow and thence to Ningpo. In April, 1898, the organization of the British and Chinese Corporation had been effected by a combination of the leading British financial and commercial firms in China—the Hongkong & Shanghai Bank, and Jardine, Matheson & Co. One of the first projects engaging their special attention was the securing of a concession for this line so as to preserve British commercial preponderance at the mouth of the Great Yangtze valley. This projected road, running through one of the richest and most populous districts of China, would open up and develop the country, stimulate similar enterprises, and prove a most profitable undertaking. At this early stage of railway development in China many British financiers endeavored to secure participation in concessions but competition gradually disappeared and British official support exclusively extended to the most representative and influential syndicate. In 1898, the preliminary concession for the Shanghai-Nanking Railway was secured for the British and Chinese Corporation. Shortly after, the Peking, Syndicate agreement was concluded and overtures made for the construction of the Peking-Hankow line. China's breach of faith in ratifying the agreement with Belgium was used as the occasion of a formal demand for compensatory advantages to Great Britain. China, complying with this demand, consented on September 14, 1908, that the following railroads would be constructed by British interests on terms equal in advantage to those secured by Belgium:

1. Canton to Kowloon.
2. Shanghai to Nanking.
3. Chinkiang to Sinyang.
4. Hangchow to Soochow with extension to Ningpo, if necessary.

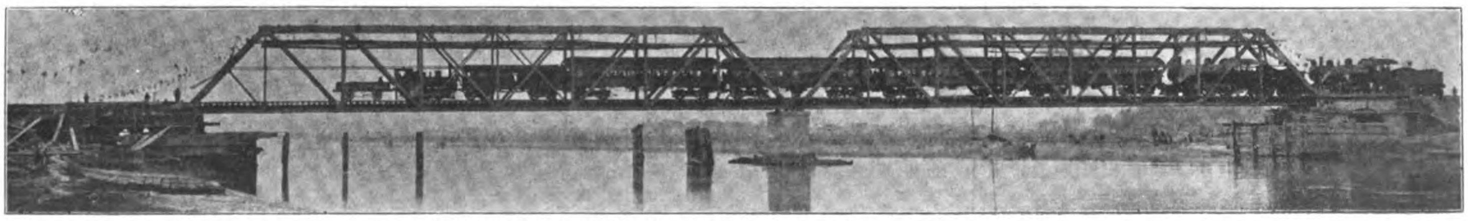
The British & Chinese Corporation, after many difficulties, succeeded in finally securing the Chinese Government agreement for the issue of bonds for the Shanghai-Nanking Road and the Kowloon-Canton Road and then turned their attention to the Soochow-Hangchow Ningpo line. But, by the time the British Corporation found a favorable opportunity for approaching this third problem, several years had elapsed and in the meanwhile two native companies had been organized for the construction and operation of the line between Shanghai and Hangchow. That part of the route between Shanghai and Fenching in the province of Kiangsu was taken up by the Kiangsu Railway Co., and the line from Fenching to Hangchow in Chekiang Province by a company under the style of the Chekiang Railway Co. An Imperial Edict of September 23rd, 1905, complicated the rights secured by the British Company by transferring the rights of construction to a provincial railway bureau and under this authority the work of the two companies was commenced with the official approval of the provincial governors. To the remonstrance of the British company to this infringement of their rights, the Chinese government promised to equitably adjust the matter, this promise terminating in China's agreeing to issue a loan of £1,500,000 through the British & Chinese Corporation for the construction expenses of the road on terms similar to the Tientsin-Pukow issue. This loan was strenuously opposed by the native companies through the provincial governors on the following grounds:

1.—As the British concessionaires did not do anything during the ten years after the conclusion of the preliminary agreement in 1897, the concession has now lapsed.

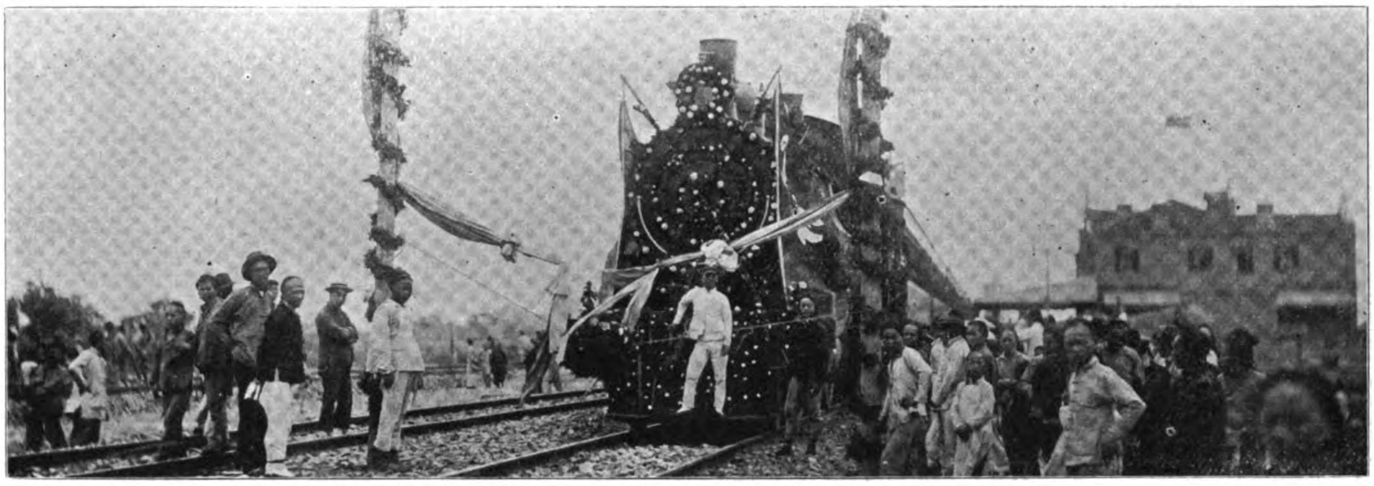
2.—In June, 1903, H. E. Sheng Kung-pao wrote officially to Mr. Brenan to the effect that if the concessionaires failed to commence work within six months then the preliminary agreement would be cancelled, but no reply was received from the representative nor was work begun at that time.

3.—The Chinese Railway Companies of Kiangsu and Chekiang have no need to float a loan from the said Corporation as was done for the proposed Tientsin-Chekiang trunk line for they have funds to build the Soo-Hang Ning railway themselves without assistance.

4.—The natives of Kiangsu and Chekiang obtained Imperial permission last year to construct the railway with purely Chinese mercantile funds.



KIANGSU RAILWAY:—ZIA-TANG BRIDGE



KIANGSU RAILWAY: OPENING DAY—AMERICAN LOCOMOTIVE AND CARS

5.—The Chinese Railway Company at Hangchow has now completed the construction of the short railway from the city to Kianghu (i. e. along the Chient'ang river) and opened it to traffic as part of the section in Chekiang, while the company at Soochow is laying rails for the Shanghai-Sungkiang portion and preparations are being made to push them forward as soon as possible.

6.—Although the proposed loan of £1,500,000 is to be guaranteed by the Provincial Governments of Kiangsu and Chekiang, yet, as both capital and interest will be repaid out of the profits of the railway in future, it is the same as placing it on mortgage.

7.—As the construction of railways in China with Chinese money is an important matter, the Peking Government should exert itself to retain full control, otherwise the consequences will be greatly detrimental to both the country and the people.

Great Britain, however, held China to the letter of the agreement that these roads were to be constructed by the British & Chinese Corporation, with British capital, preference to British goods, and supervision by British engineers.

Peking, confronted by the opposition of the provinces against interference in their internal affairs, and on the other hand, by the pressure of the British Government to compel it to live up to its agreement, true to its traditional policy, temporized, and instead of commanding obedience from the provinces, gave in to outside pressure and authorized the Loan as the easiest way out of an unpleasant dilemma.

The loan was made under the following conditions:—

Loan of £1,500,000 at five per cent interest per annum issued at 93.

Loan will be guaranteed by the Provincial Governments of Kiangsu and Chekiang pro portionately instead of by line in question.

The surplus of the revenue of the Imperial Railway of North China is also placed as security for the loan.

The name of the railway is changed to Shanghai-Hangchow-Ningpo Railway from the Soochow-Hangchow-Ningpo Railway.

The loan should be commenced to be redeemed after ten years and finally redeemed within 30 years, but after the eleventh year China may redeem the whole of the loan, but in that case two pounds ten shillings will be added per £100.

The chief engineer shall be an Englishman, to be engaged by China herself, on the condition that he must be recognized by the corporation.

The line will be built and controlled by the Chinese.

In case of buying foreign materials the British and Chinese Corporation will supply the same with five per cent commission, and the sum of £35,000 will be paid to the Corporation in two instalments and the Corporation will not audit the accounts.

The sum of £60,000 will also be paid out of the profits from the sale of bonds.

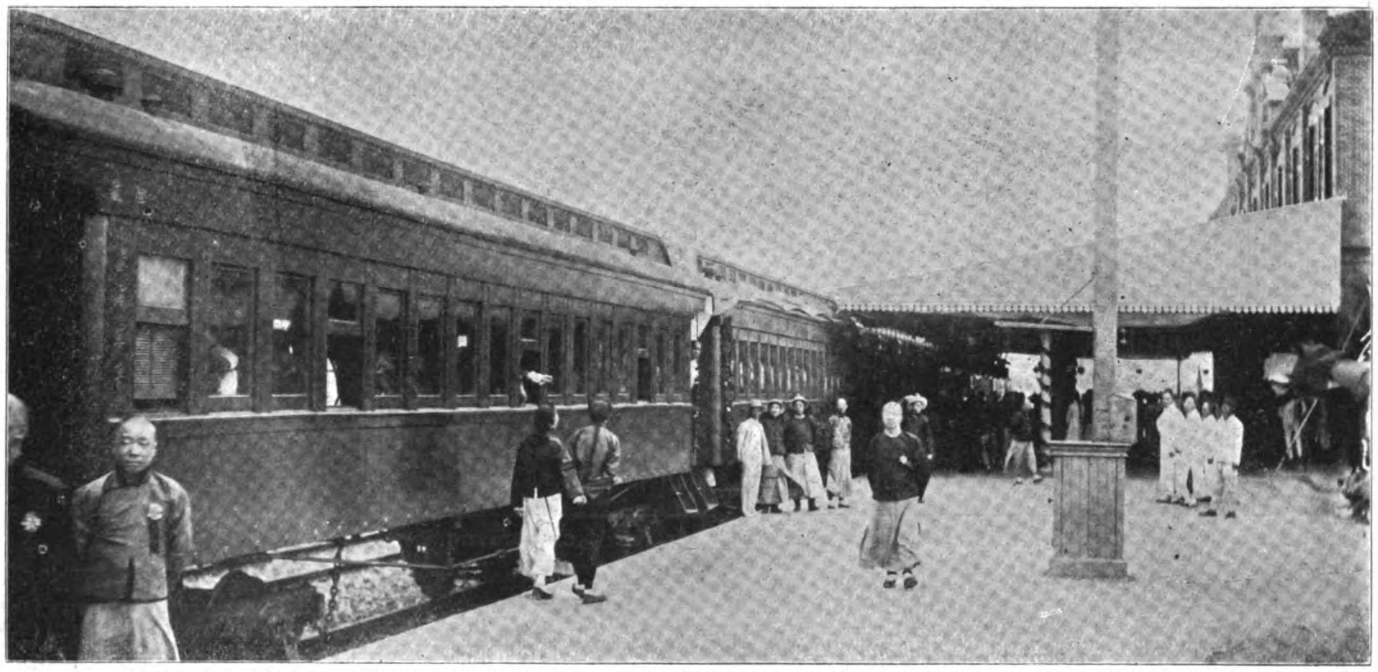
The natives of the two provinces shall be permitted to purchase the shares under similar conditions as foreigners.

The funds which have already been spent for the construction of those sections of this line by the people of these two provinces are to be added to the capital over and above the £1,500,000.

Interest will be paid out of the net profits of the line in future.

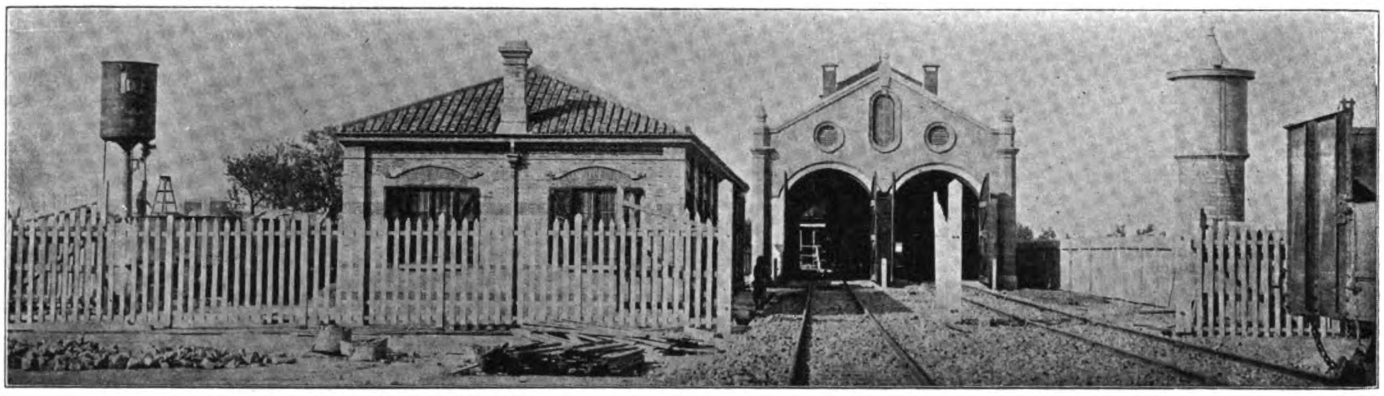
The flotation of this loan placed the Chinese Government in a peculiarly vulnerable position, as the agreement was entered into with the full knowledge beforehand that the proceeds could not be applied to the purpose for which they were intended, owing to the decided opposition of the provincial companies supported by a unanimous public sentiment. A deadlock was inevitable. The railway companies refused to use any part of the loan, or purchase materials through the British & Chinese Corporation. After considerable delays, the following compromise was entered into.

The Kiangsu and the Chekiang Railway Companies are, according to an Imperial Decree, both private commercial companies and will

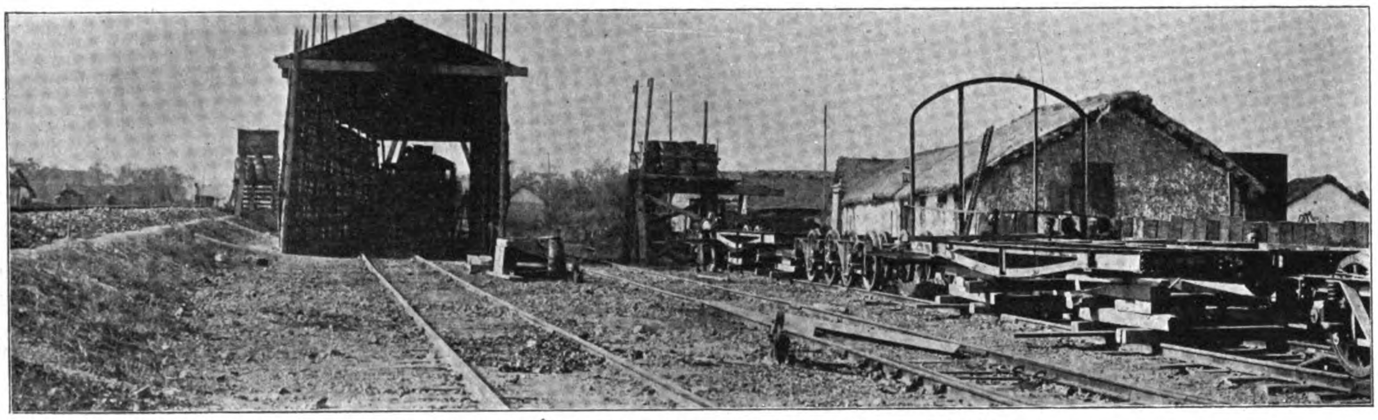


KIANGSU RAILWAY: STATION OF SHANGHAI ON OPENING DAY—AMERICAN (HARLAN & HOLLINGSWORTH) CARS

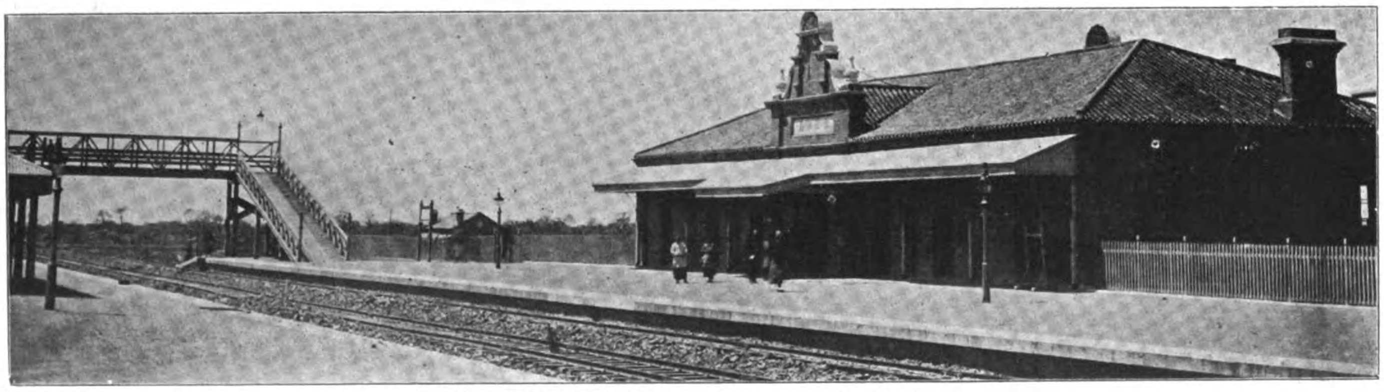
KIANGSU RAILWAY: OFFICES AND STATION AT SHANGHAI



KIANGSU RAILWAY: LOCOMOTIVE SHED AND WATER TANK AT SHANGHAI



KIANGSU RAILWAY: TEMPORARY CAR ERECTING SHED

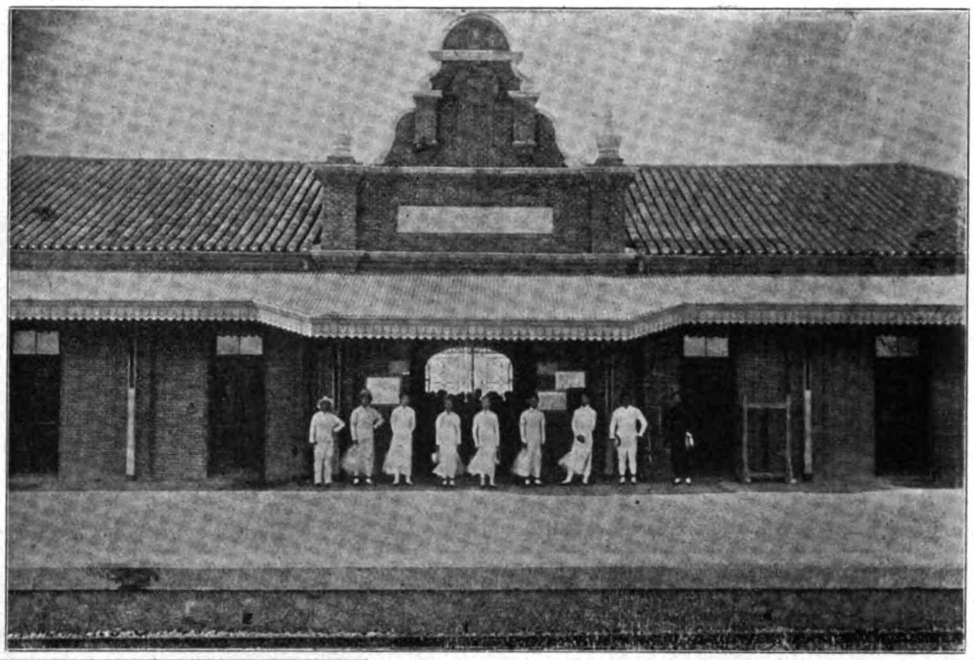


KIANGSU RAILWAY: SUNGKIANGFU STATION

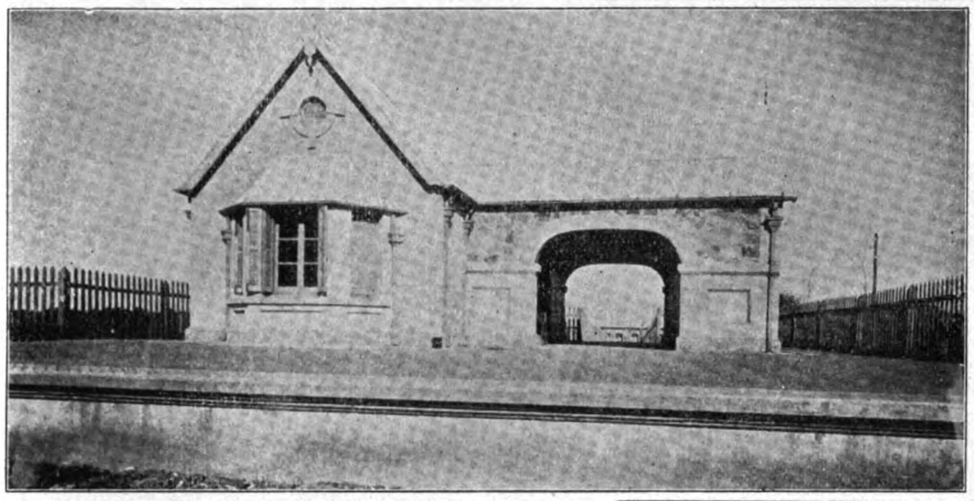
be treated the same as other railway companies which are private commercial companies. The said two Companies will borrow from the Board of Communications a sum of about Taels 10,000,000, and at least Taels 7,500,000, which will be paid by the Board in two instalments, namely within seven months from the 6th March 1908 the sum of Taels 8,000,000 and the rest within twelve months from that date. This may be postponed till eighteen months but not more than twenty four months If the Board can not comply with this arrangement the agreement will be cancelled and the railway companies will repay the sum already in hands within six months and the same shall

not be delayed more than twelve months. The British and Chinese Corporation has nothing to do with the Companies and shall not interfere with them. The sum needed by the railway will always be received by the Companies from the Board after duly stating the items for which the sum is needed. In case more than Taels 200,000 are needed the same should be referred to the Board at least ten days previously. The companies will pay certain interest annually on 30th June and 31st December. When there is any surplus in the revenue of the railways the royalty of one twentieth of the same will be paid to the government but for all the expenses regarding the loan from the British and Chinese Corporation the Board will be solely responsible. The railway companies are simply responsible for the repayment of the principal and interest but have no responsibility to give securities. The term of the loan is for thirty years and in the first ten years the principal will not be repaid but the same will be commenced to be repaid from the eleventh year. After the eleventh year if the railway companies wish to repay at one time or at shorter intervals six months notice should be given and when this is repaid the agreement will be cancelled. When the work of the railways is complete the two companies will hand the interest for the last half year six months before to the Bank of Communications at Shanghai and after the last half of the tenth year the portion of the principal and interests to be paid should be deposited at the bank six months before and the interest on the same will be paid by the said Bank. The right of building and control of the Shanghai-Hangchow-Ningpo Railway is solely in the hands of the Kiangsu and the Chekiang Railway Companies and the Board will not interfere with the same. The Director General of the line will by order of the railway companies within six months of the date of this arrangement select an engineer-in-chief in England or amongst the railway engineers in the employ of the Imperial Railway of China. Such engineer-in-chief should be under the command of the Director-General or his deputy. The contract with such engineer-in-chief will be made with the said Director General and the same will be the case in employing other railway experts. In case there is any dispute in connection with such contract the Board will not interfere but merely the contract will be the evidence of the case. It is always provided however that while the loan is in existence a British Engineer-in-Chief will be employed. In case of buying materials through the British and Chinese Corporation the Board of Communications will arrange for commission and therefore the railway companies need not pay such commission. In case the railway companies will not buy materials through the said corporation the commission should be paid by the railway companies. The Bank of Communications will be the Bank of the Board and the funds should pass through the hands of the Bank.

The Kiangsu Railway Company was organized with a capital of $3,000,000 Mexican to operate the road between Shanghai and Fengchin, a distance of 38 miles. The Chekiang Railway Co. operating the road from Fengchin to Hengchow, a distance of 78 miles, was originally organized with a capital of $5,000,000, all paid up. In June, 1908, in order to provide funds for the extension to Ningpo and the construction of the Chien Tang Bridge at Hangchow,

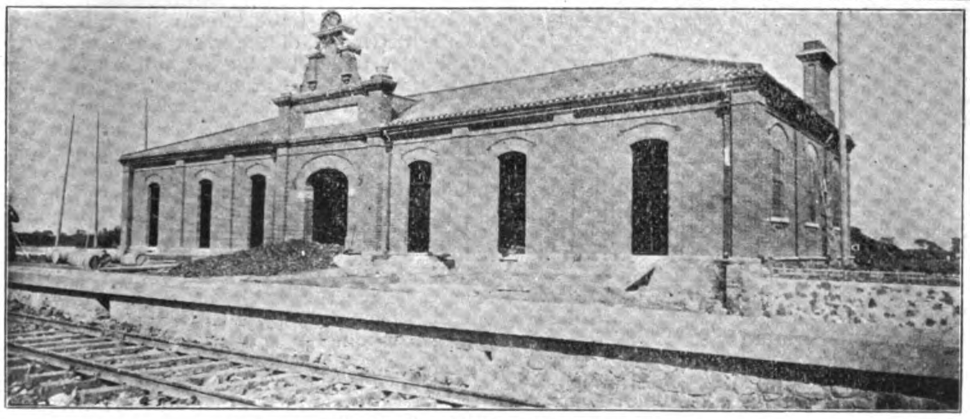


KIANGSU RAILWAY: STATION

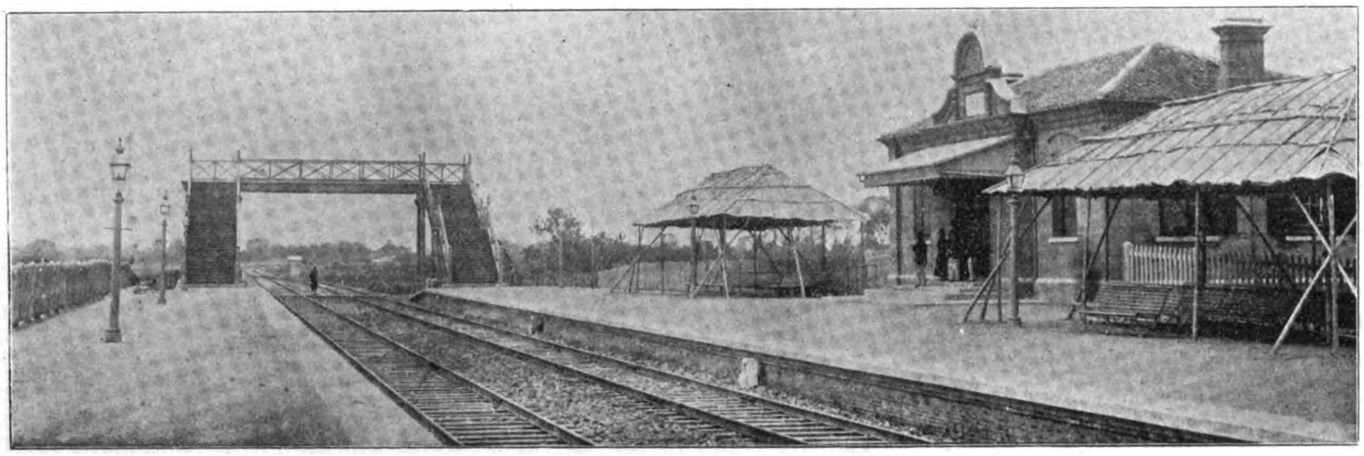


KIANGSU RAILWAY: FENGCHING STATION

KIANGSU RAILWAY: 3RD CLASS STATION



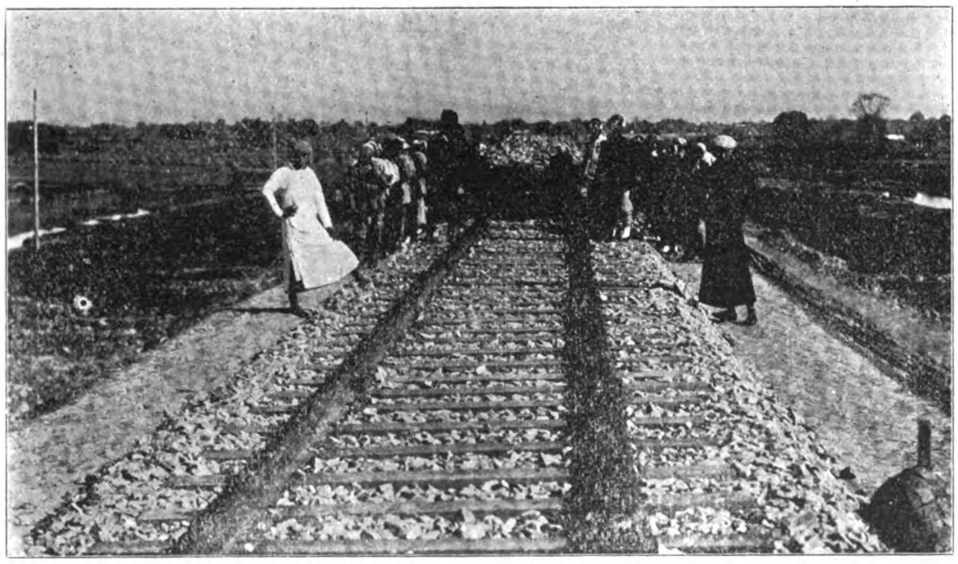
KIANGSU RAILWAY: STATION



KIANGSU RAILWAY: TUNG-HUA STATION

an ncrease of capital of $15,000,000 was authorized, to be paid in 5 yearly instalments. Only Chinese were permitted to subscribe or hold stock and the number of shareholders is reported to be over 53,000, about 40,000 of whom are coolies, farmers and small tradesmen, some holding as low as $5.00 in shares. The first call on the new issue of $3,000,000 is reported to have been paid in. Up to the recent completion of the two roads, both companies had ample funds at their disposal without recourse to the British loan to carry out all their work and purchase all materials. Of the £1,500,000 loan, the Board of Communications has so far allotted Taels 500,000 to the two companies at $5\frac{1}{2}\%$ interest, charging 7% of the amount as premium. Although the loan provided for the employment of a British engineer and the purchasing of the materials through the British and Chinese Corporation, the Chekiang Ry. Co. declined to avail themselves of the purchasing agents' services and in consequence has had to pay the sum of $250,000 Mex. in lieu of the 5% commission stipulated in the Loan Agreement. The British engineer appointed to the Chekiang line construction did not report for duty until the 78 mile section of the road terminating at Hangchow was completed by Chinese labor and capital. Under a new agreement he will be retained to superintend the construction of the extension from Hangchow to Ningpo at a salary of $16,000 gold per annum.

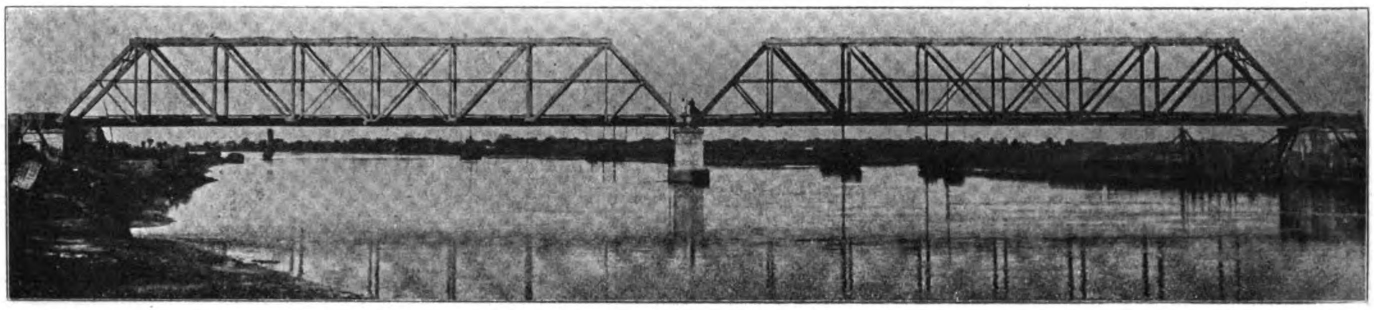
KIANGSU RAILWAY: ENGINEER'S STAFF

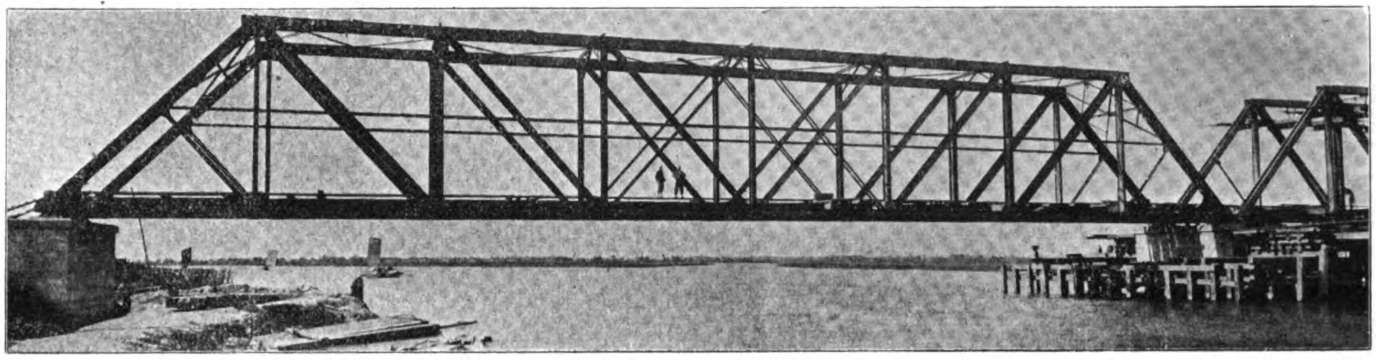


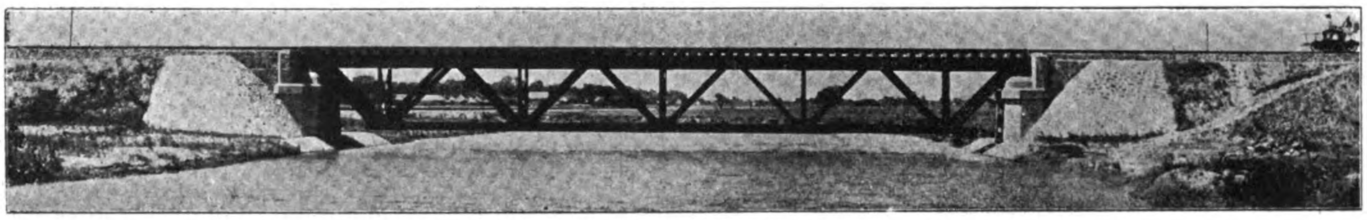
KIANGSU RAILWAY: A WELL-BALLASTED ROADBED

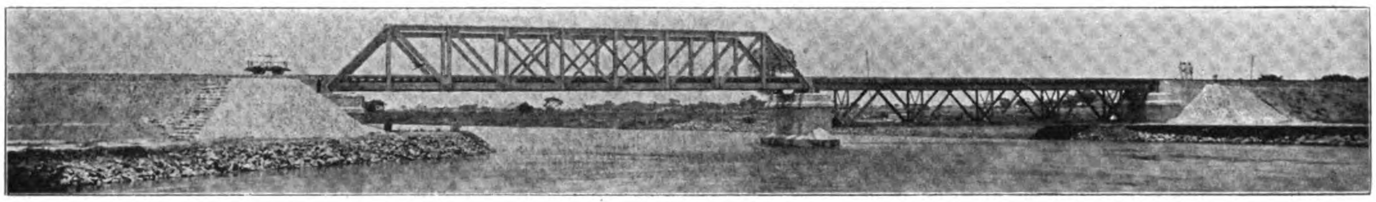
The Chekiang Company has so far been allotted about $450,000 Mexican of the British Loan but, not needing it, has loaned the money to Chinese Banks at a higher rate of interest than that exacted from them by the Yuchuanpu (Board of Communications). The president and vice president of this line receive no salary and the other officials are paid ridiculous low wages. Mr. T. C. Pu, the secretary and chief engineer under whom the road has been constructed, is a graduate of the Civil Engineering School of the University of California, Class of 1907. Although fresh from college and with little practical experience he is quite capable. His salary as chief engineer is $2700 gold per annum. With plenty of funds, there has been comparatively little waste in construction, although the management is open to some criticism for the lack of sound judgment in purchasing supplies. Locomotive engineers are paid from $60 to $80 Mex. per mensem, station masters, $18 to $36, track foreman $9.40, and laborers about $8.00. The actual cost has been less than $26,000 Gold per mile including cost of earthwork, tracks, rolling stock, stations and all charges. The Chekiang Line has a total of 144 steel girder bridges, supported on concrete abutments, and 157 culverts crossing small canals and ditches. All of these girders were purchased from the American Bridge Co. of New York through their local agents. The longest bridge on this road is a 60 ft. span with an average of 45 ft. The country traversed by both the Chekiang and Kiangsu Railways is a net work of canals and waterways, the natural highways of commerce and trade in this low lying section. The closing or narrowing of those streams by cofferdams to the detriment of the great junk and river traffic was prohibited by the authorities so in many instances the railway engineer put into practice the old scheme of building one abutment at the water's edge, the other on dry land to one side, and then after completion, the shallow canal was diverted from its old channel to the new ones between the abutments. There is nothing remarkable about this practice although the *London Times* Correspondent employed it as an argument to criticize the professional ability and capacity of the engineer. The same practice was resorted to in the construction of the Shanghai-Nanking Railway. The correspondent of the *London Times* says:

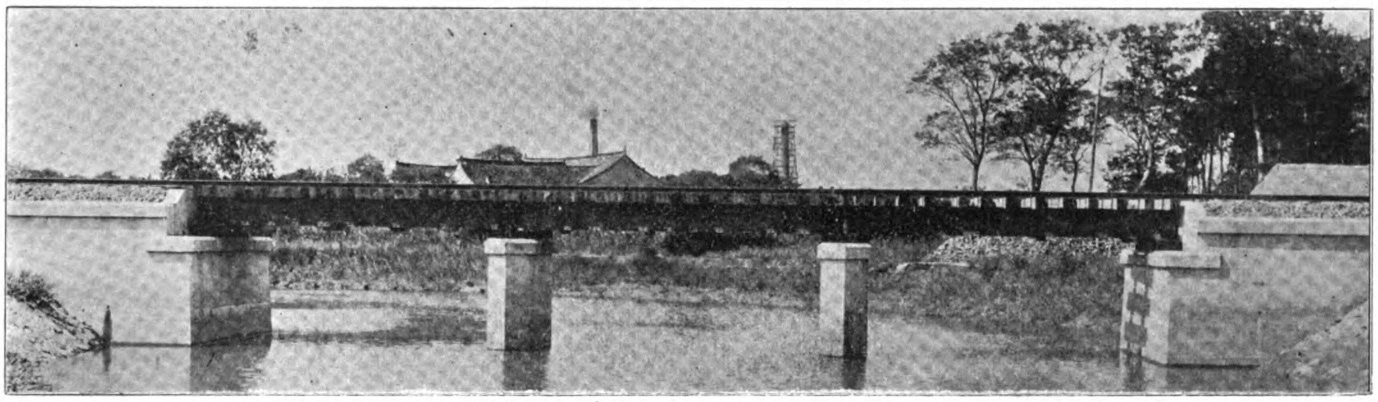
"Where there was difficulty in bridging a stream, the Chinese built the bridge on dry land and then dug a canal and diverted the waterway under the bridge, both the entrance





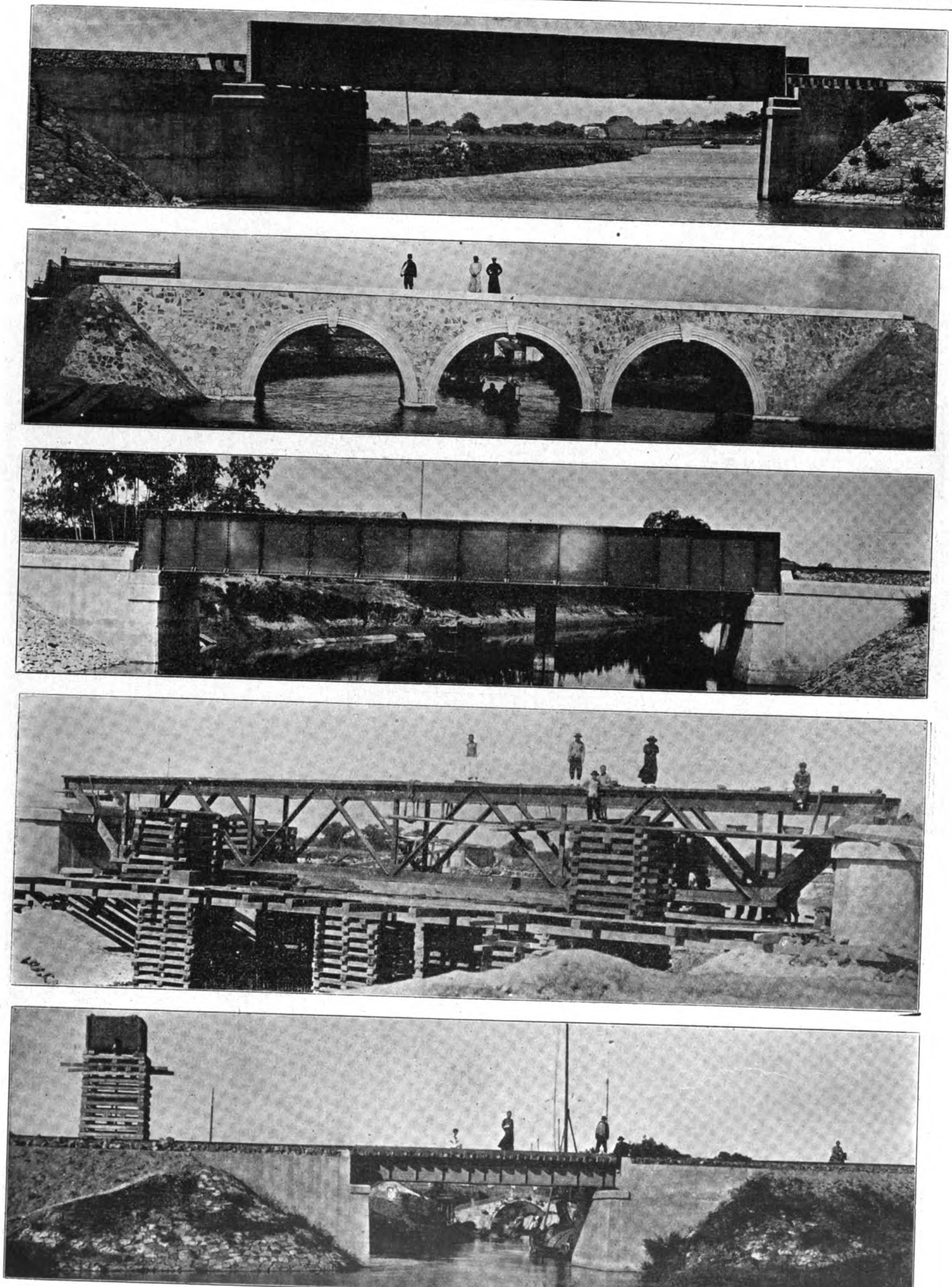






KIANGSU RAILWAY: TYPES OF THE MUCH CRITICISED BRIDGE WORK

KIANGSU RAILWAY: A GRADE CROSSING

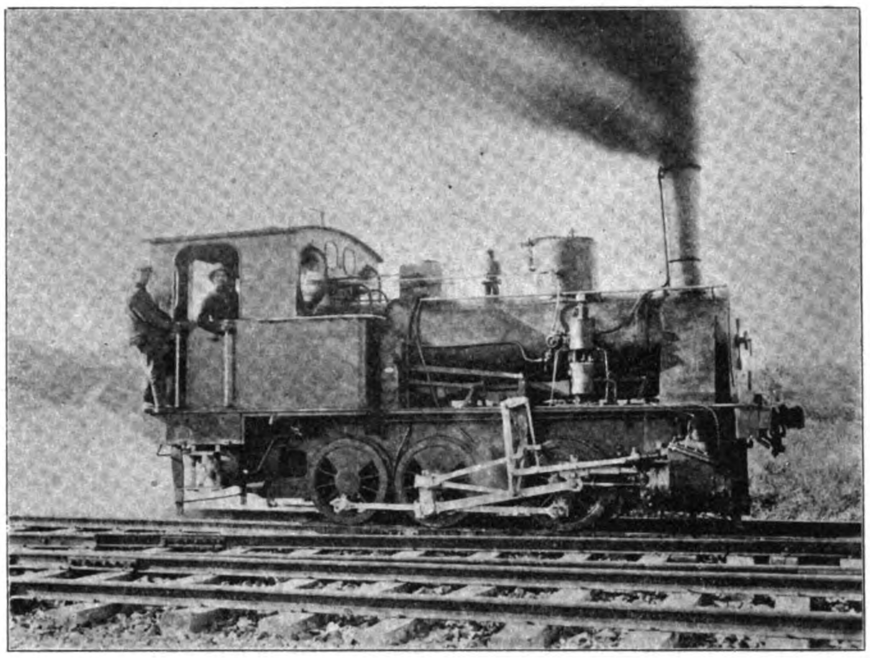


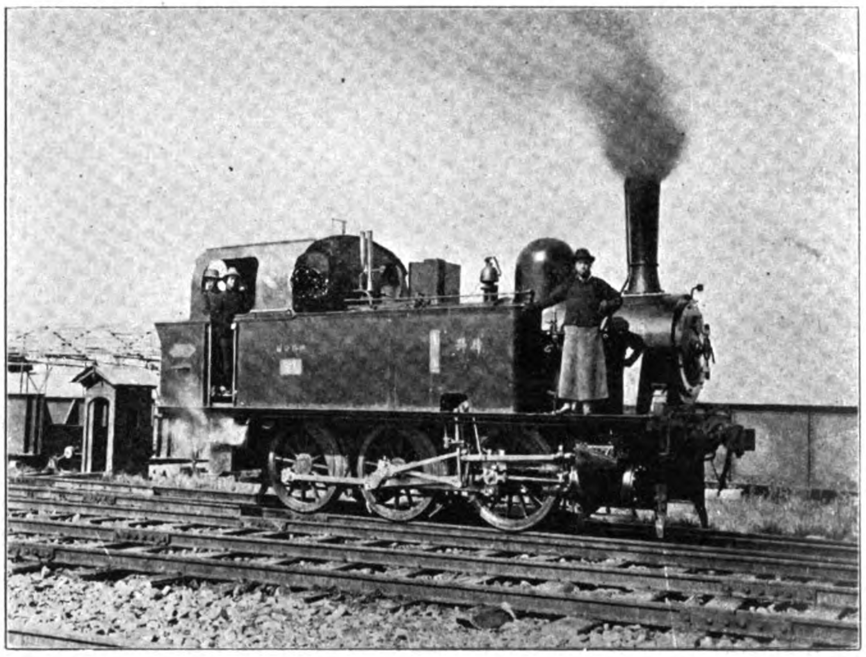
KIANGSU RAILWAY: TYPES OF BRIDGES

to the diversion and the exit from it being literally at right angles to the natural direction of the stream." The mere fact that such practice could be resorted to is an indication of the innocence and sluggishness of the water, and as nearly all are tidal canals, it rather reflects on the good judgment of the engineer than otherwise as the best method of keeping the narrow channels open to junk traffic during the construction of the road.

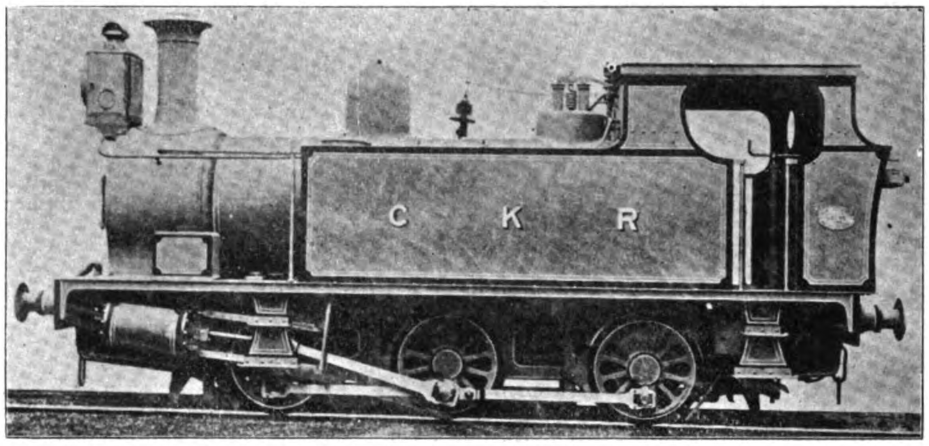
The ties on both lines were purchased in Japan, and while not of the highest quality,

CHEKIANG RAILWAY ROLLING STOCK





GERMAN-"BORSIG"-LOCOMOTIVES

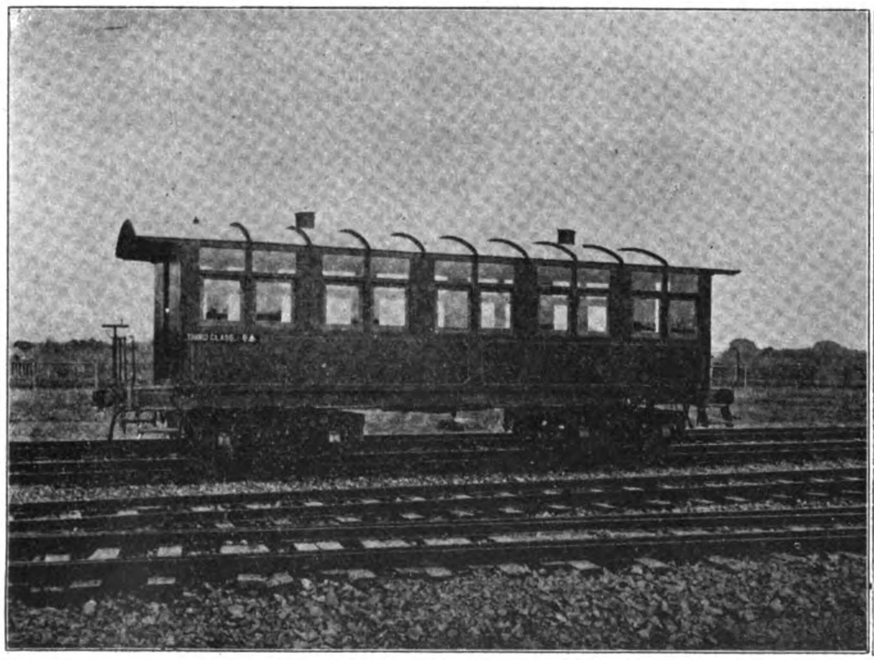


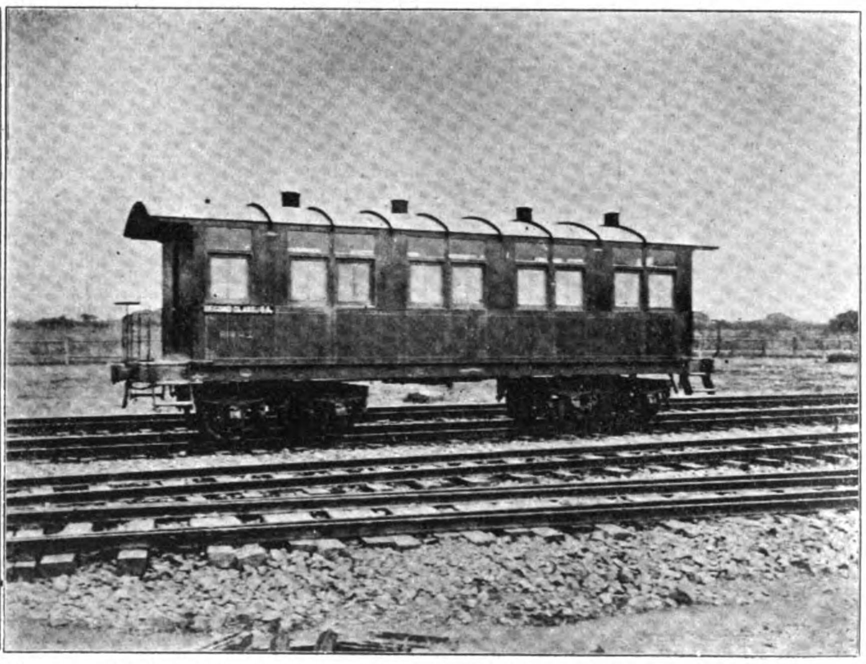
BRITISH SADDLE TANK LOCOMOTIVE: HUDSWELL CLARK & CO., MFGRS., SOLD THROUGH MESSRS. BRIGHTEN, MALCOLM & CO., LTD.

are of standard sizes 8 ft.×8″×6″ spaced 2 ft. 4 in. between centers. These ties are estimated to have a life of 7 years under conditions existing in this section of China. They cost delivered $1.05 Mexican each. The ballast is limestone and sandstone secured from quarries near Hangchow with rail connections with the main line. The roadbed is ballasted for a width of 10 feet and is 6 inches deep. The cost delivered at the track was about 60 cents Mexican or 25 cents per cubic yard.

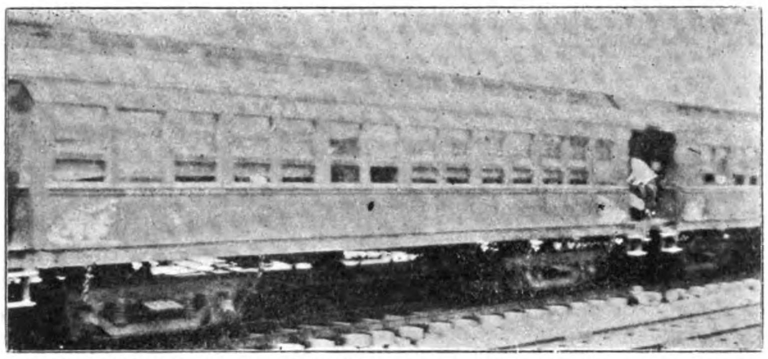
The entire line from Shanghai to Hangchow is 116 miles long. The Chekiang section has in addition 36 miles of sidings. The line is single track, standard gauge and the rails of 75 lbs. to the yard, of Standard Section, 10 meters long, laid with even joints. These were manufactured at the Hanyang Iron & Steel Works, opposite Hankow.

The Chekiang Railway has 15 depots and the Kiangsu line 10. The stations on the former line are not all completed and in some instances only temporary matsheds are in use. Wood has been employed for platform sheds. On

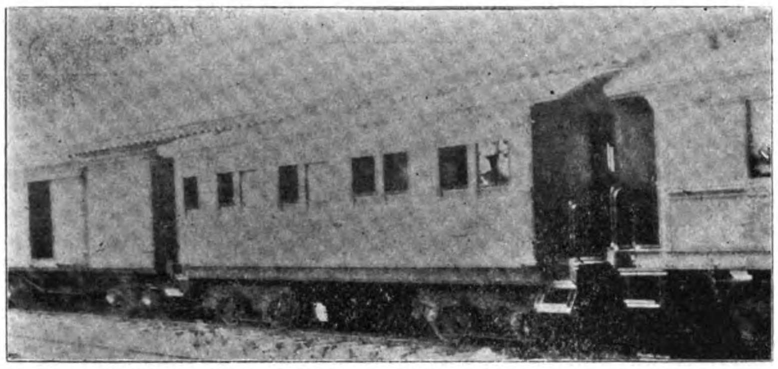




BRITISH SECOND & THIRD CLASS PASSENGER COACHES, FROM RENSHAW & CO., SUPPLIED THROUGH MESSRS. VON DUERING, WIBEL & CO.



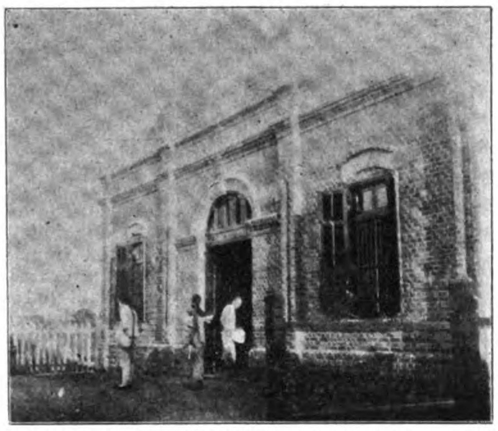
CHEKIANG RAILWAY: PULLMAN 1ST CLASS PASSENGER CARS SUPPLIED THROUGH MESSRS. MITSUI & CO.



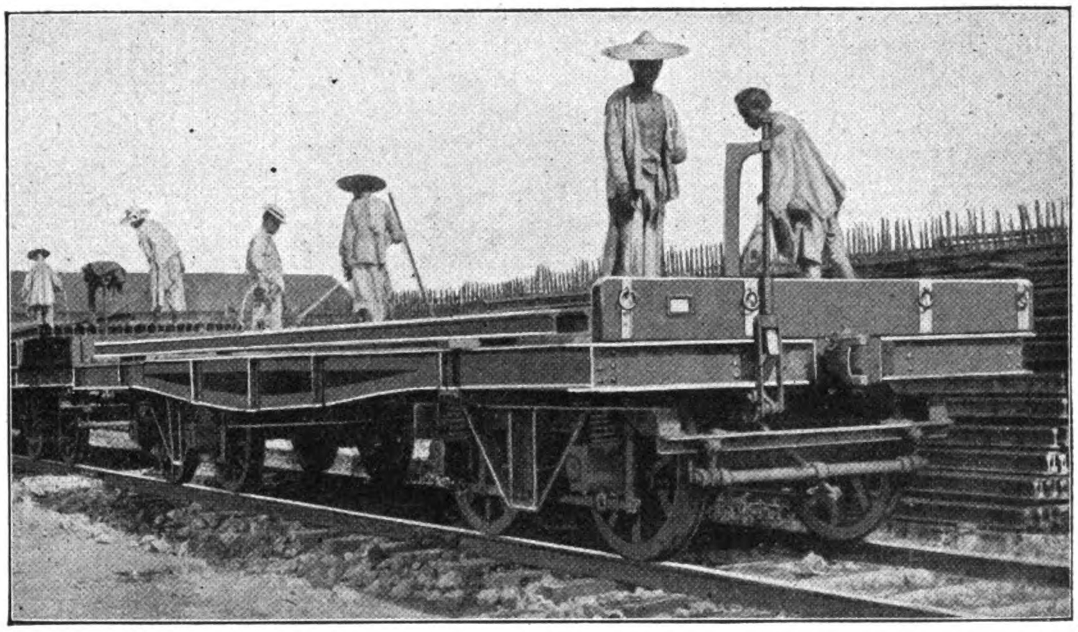
CHEKIANG RAILWAY: BRITISH AND AMERICAN CARS

the Kiangsu Line, commencing with the fine commodious central depot and general offices at Shanghai, all the stations are of brick or stone, attractively and substantially built.

The Kiangsu Line has 48 bridges, exclusive of culverts, some stone arches and some steel girder type. The longest bridge is at Ziatang with a length of 440 ft. in two spans. There are also bridges at Yuen Zia-ching, 400 ft. in span, Lu Tienwan, 200 ft. in span, and Pei Ya



CHEKIANG RAILWAY: 3RD CLASS STATION



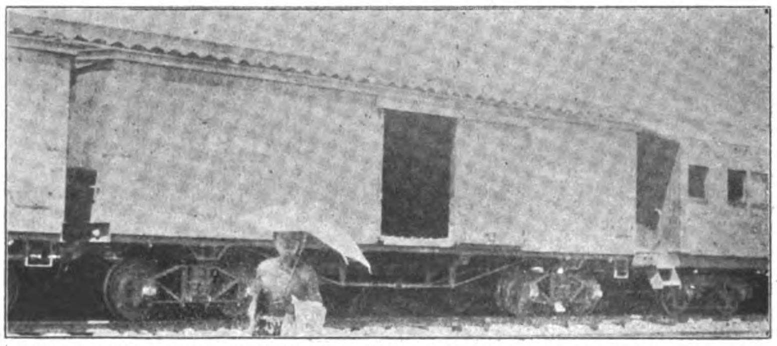
FLAT CAR ON CHEKIANG RAILWAY

hing, 100 feet in span. The whole capital used did not exceed Tls. 2,000,000, of which Zia Tang required the greater part, its construction being most difficult. It is a branch of the Whangpoo River, its current very rapid and its depth over 40 ft.

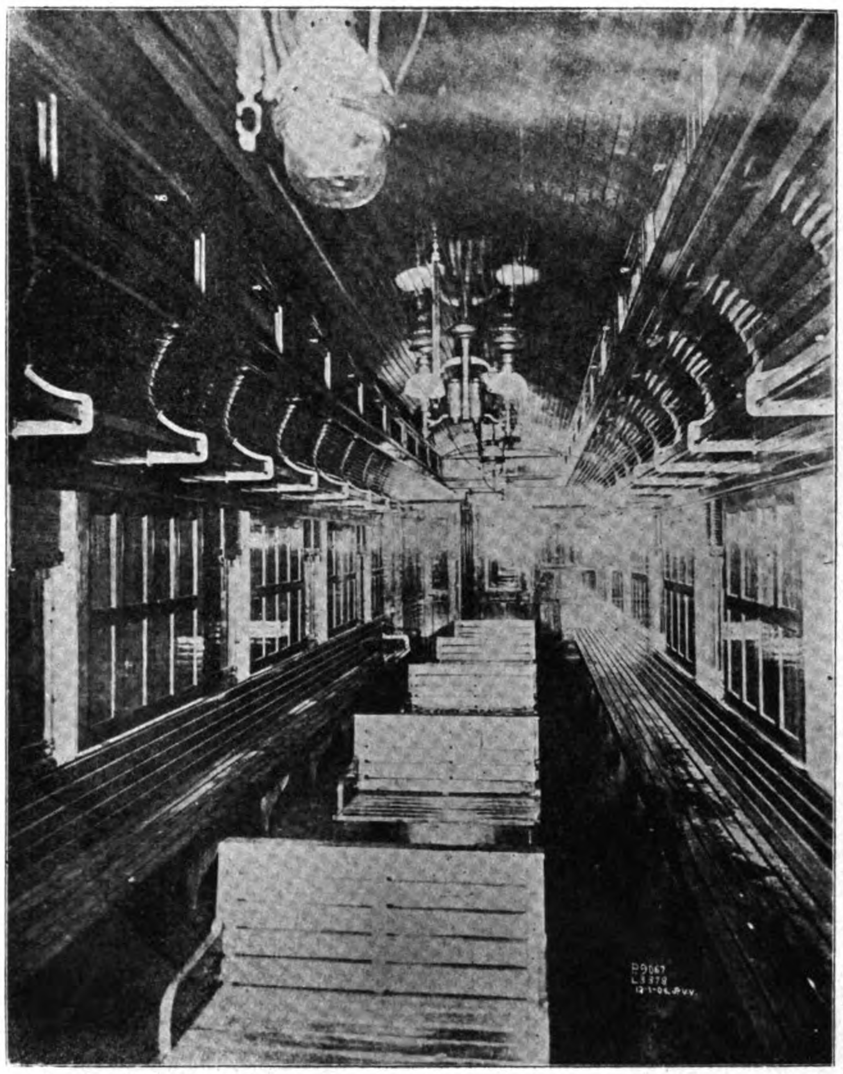
On the Kiangsu Road the rolling stock is American. The first, second and third class cars were manufactured by the Harlan & Hollingsworth Co. of Wilmington, Del., according to specifications submitted. This equipment was sold through the firm of Carlowitz & Co. These cars and trucks were ordered from America the same time as the engines. The latter, from the American Locomotive Company, were ordered to meet the requirements of the Chinese Railway Board's rule that the height from the top of the rail to the center of the drawbar or coupling should be 3′ 7″. The cars were ordered according to American practice which stipulates a height of 10 inches less than the above. To the American car and American truck has been fitted the standard Chinese wheel, 42″ in diameter, or 9 inches more than the American standard. To give clearance to this wheel the car bodies have been blocked up at the kingbolt and on the sides about 9 inches. The effect is a botch and of course every one shifts the trouble on the poor American rolling stock when the real cause lies with those who ordered the material.

The Chekiang Line is a menagerie of rolling stock. Nine different types from various makers are doing duty on this section. Disgruntled critics say this variegated assortment of cars is due to the fact that each of the directors has the right to order in turn the material for the road and does so according to his fancy and ideas of "official commission." The officials of the road answer that they knew what they were doing and purposely collected the various types to try them out and determine for themselves just what type of cars and locomotives are best suited for their requirements. This equipment will surely assist them in arriving at a fair decision of what their future requirements will be, for they have been strictly impartial in bestowing their orders. We find, at first, two Borsig German Tank Locomotives purchased through the firm of Von Duering Wibel & Co. of Shanghai, at an approximate cost of $8,200 gold each, then 6 British Tank Locomotives from the Hudswell Clark factory were secured through the firm of Brighten, Malcolm & Co. at $9,720 gold each, and lastly 4 Mogul type engines from the American Locomotive Co. were purchased at $13,600 each through the firm of Mitsui & Co. Passenger coaches in operation number 41. Ten of these cars were built by Renshaw & Co. of England and 11 more have recently been added from the Pullman Works at Chicago. Of 203 freight cars, some are from Orenstein

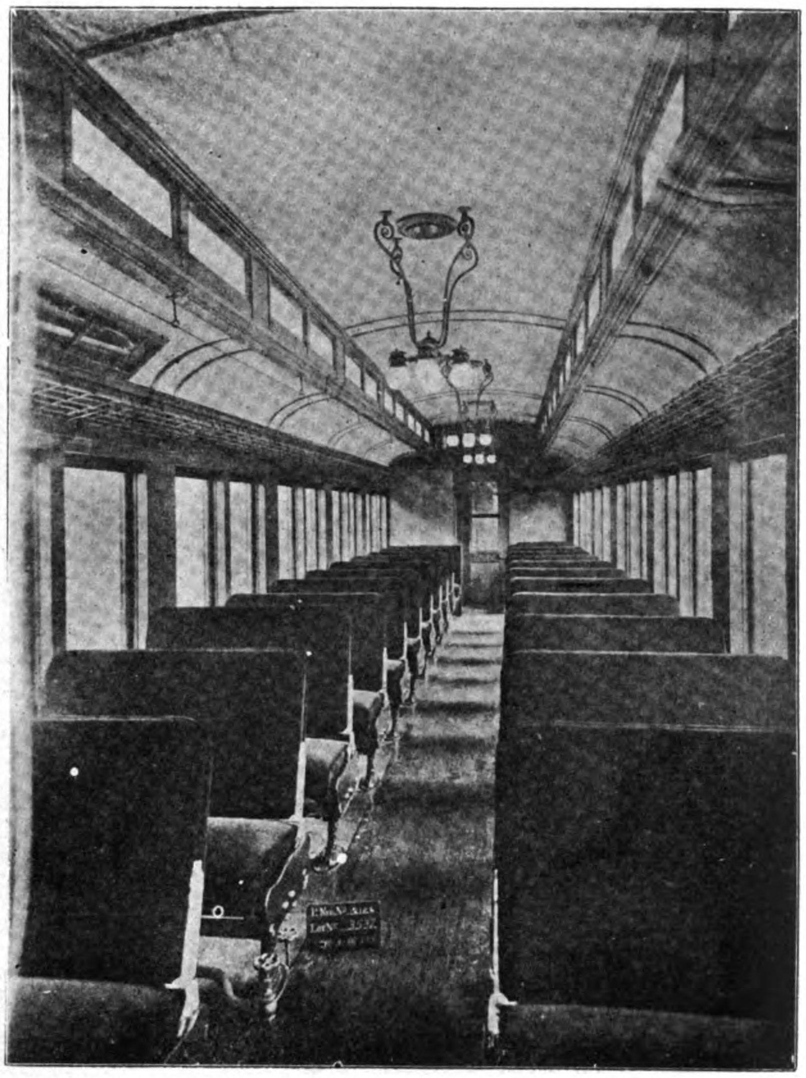
KIANGSU RAILWAY: AMERICAN (HARLAN & HOLLINGSWORTH) PASSENGER CARS



CHEKIANG RAILWAY: AMERICAN BOX CARS (AMERICAN CAR AND FOUNDRY CO.



CHEKIANG RAILWAY: Interior of 3rd Class Coach, Built by the Pullman Co. of Chicago



CHEKIANG RAILWAY: First Class Passenger Coach, Built by the Pullman Co. of Chicago

& Koppel, some from Renshaw, some from Tongshan, and the rest from the American Car & Foundry Co. The Company is now constructing cars at its own shops at Hangchow where four have already been turned out and there are eight building.

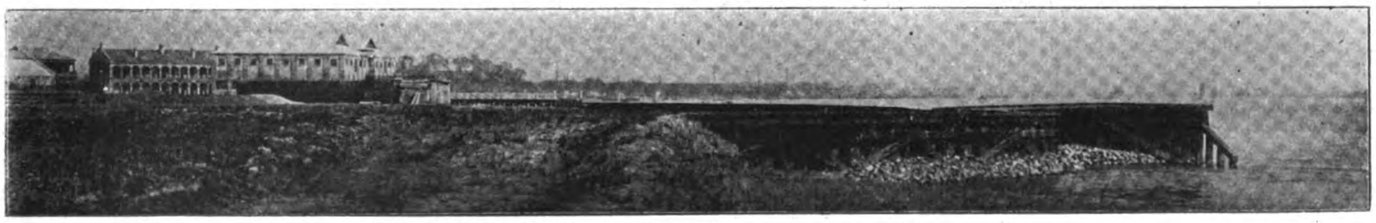
It is too early to direct criticisms against the management for purchasing the various types of rolling stock. At present all cars and locomotives look alike to the average Chinese Railway official. Every manufacturer's agent in the world is telling him that his products are the best and to beware of the other fellow. Quality is subordinated to cost and commission, and if they take it into their heads to determine for themselves what they want in the future, promiscuous purchases may be justified at this time. In three years from now the Chekiang Railway Directors will have become educated through actual experience and know better what they desire and if not trammelled by the provisions of a Loan Agreement they will know what cars to order, be they British, German or American. Until such time, it is unfair to criticise their rolling stock, however poor some of it undoubtedly is. They got what they ordered and paid for and no more. The chief engineers of both the Kiangsu and Chekiang lines already appreciate the errors committed and hope to do away with them in future.

On the Chekiang Railway there are no grades of more than 2-10 of 1%, and no curves of more than 3 degrees: labor is the cheapest in the world, and there is only about $2,200,000 gold invested in the property. At the outset, the passenger receipts alone between Kashing and Hangchow, a distance of 60 miles, averaged $3000 Mexican per diem. With the road completed and through service as now obtains from Shanghai to Hangchow these receipts should ascend to $4000 per day, or a total of $550,000 per annum. Allowing the high rate in China of 30% for operating expenses and charges, this road will pay at least 7% on its invested capital the first year.

Taking everything into consideration there is every reason to believe that in ten years the road will prove as remunerative an enterprise as the Imperial Railways of North China. The extension of the road to Ningpo is now occupying the attention of the officials, but progress is checked until a solution is found to the present conflict of authority between the Central Government and the provincial gentry. Peking has attempted a solution of the tangle by appointing the director of the Chekiang Railway to the post of Provincial Judge of Yunnan. With him out of the way, the Central Government feels that the situation will clear, but the gentry of the Province have protested against his transfer, and the end is still far off.

This Railway Company has just received a consignment of freight cars from the firm of Orenstein & Koppel of Berlin. These cars which are built for a 35-ton load differ from the cars previously used on this line by their having steel plate bogies and steel plate springs instead of the Diamond Arch Bar Bogie with coil springs.

This new type, though possibly more expensive, is a very substantially constructed car. Another large order of box cars from the American Car & Foundry Co. of New York, placed through Mitsui & Co., are also in operation. In view of the recent somewhat unfavorable comments on the rolling stock employed on this railway, these new orders indicate that the Railway authorities are perfectly alive to the necessity of adopting improvements. Eventually, when the new equipment is working talk about inferior rolling stock will gradually cease.



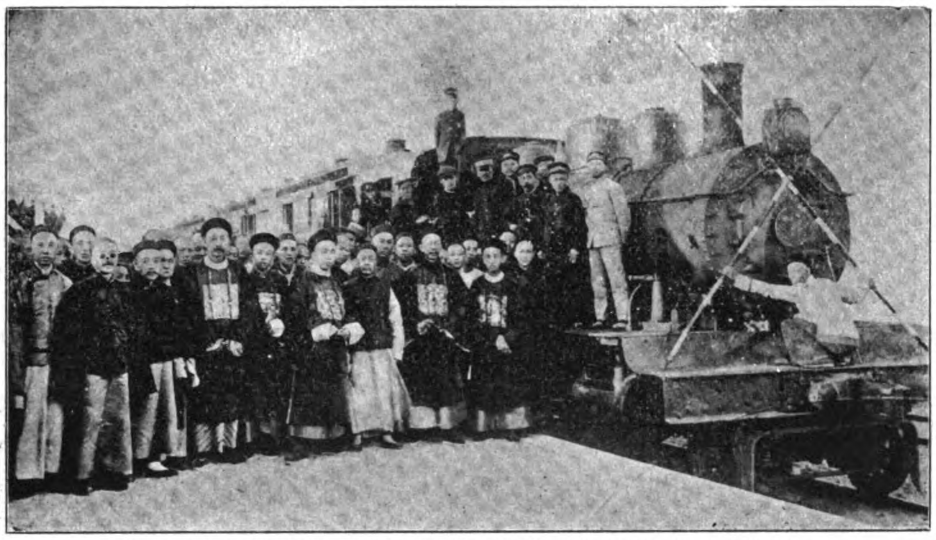
KIANGSU RAILWAY: River Terminus near Kiangnan

SWATOW-CHAOCHOWFU RAILWAY

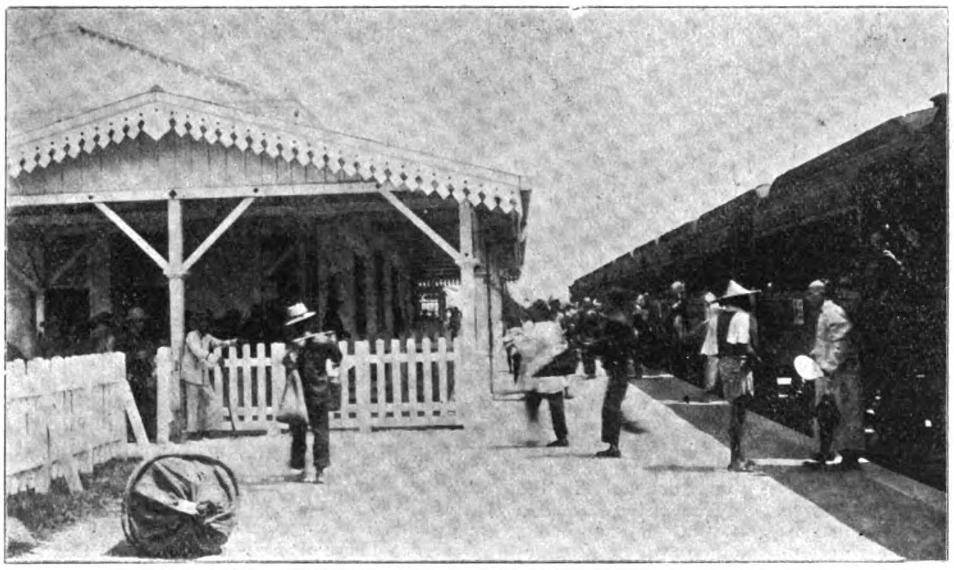
The Chao Chow & Swatow Railway Co., Ltd., is the first distinctly Chinese railway organization which has succeeded in building and operating its road. The necessary concession was granted in 1903 to one Chang Yu-nan, a native merchant who made his fortune in Java, and work commenced in 1904. The Company is registered under the Hongkong ordinances, and a director, Mr. Ng Li Hing, resides in that colony and looks after its interests there. The head office is located on Chee On St. in Swatow. It is capitalized at $2,000,000 Mex.

The construction work was carried out by Japanese engineers, under the direction of the well known firm of Mitui Bussan Kaisha. The road was opened to traffic throughout the entire length on the 16th of November 1906.

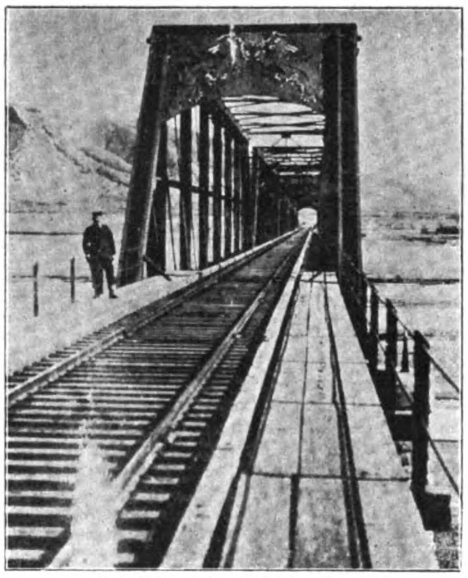
It is almost 24 miles in length, and has four stations besides the terminals. The gradients are low, and curves are comparatively few. Throughout its whole course the line is practically level, with no deep cuttings. The only bridge of any size spans the north, or Ampou branch of the Han river, about two miles from Swatow. The greatest difficulty encountered was the number of small streams and water outlets which has to be spanned by culverts



SWATOW-CHAOCHOWFU RAILWAY —OPENING CEREMONIES



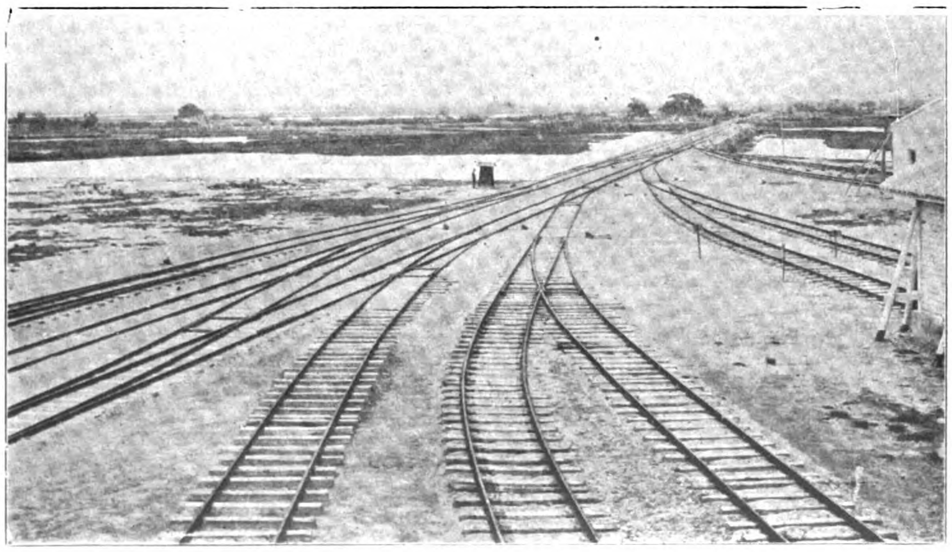
SWATOW-CHAOCHOWFU RAILWAY.—SWATOW STATION



I.R.N.C.—LANCHAU BRIDGE

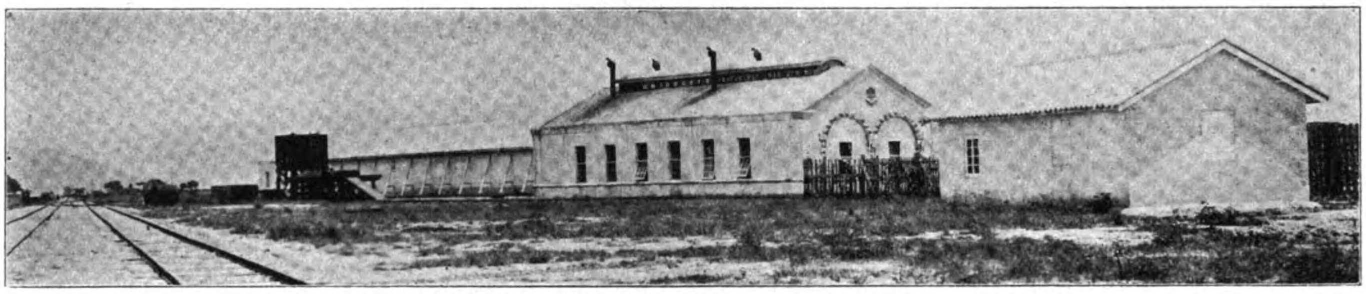
The embankment is mainly composed of field mud dug up close to the line, and ballast is sparingly used. Japan hardwood sawed ties and American steel rails, angle bars, and spikes were used. The three 54-ton locomotives, constituting the motive power, are of American manufacture. They bear, however, a conspicuous name plate in English and Chinese, setting forth the firm that sold them. The coaches, of which the road has twenty-four, are built on the corridor plan, and were constructed in Japan. They will each seat fifty passengers. The first class coaches are fitted with seats that imitate the American patterns, and are upholstered in imitation leather. The second class coaches have wooden benches. The couplers are of the American type. A standard train consists of fourteen coaches and a guard's van. The latter is the only one provided with brakes, the American air brake on the locomotive being relied on to handle the train. Forty-eight small freight cars complete the list of the company's rolling stock. This road is the first in China to be built with Chinese capital.

Previous to the formal opening of the road the trains had been running for eight days (three a day each way), and the daily average of pas-

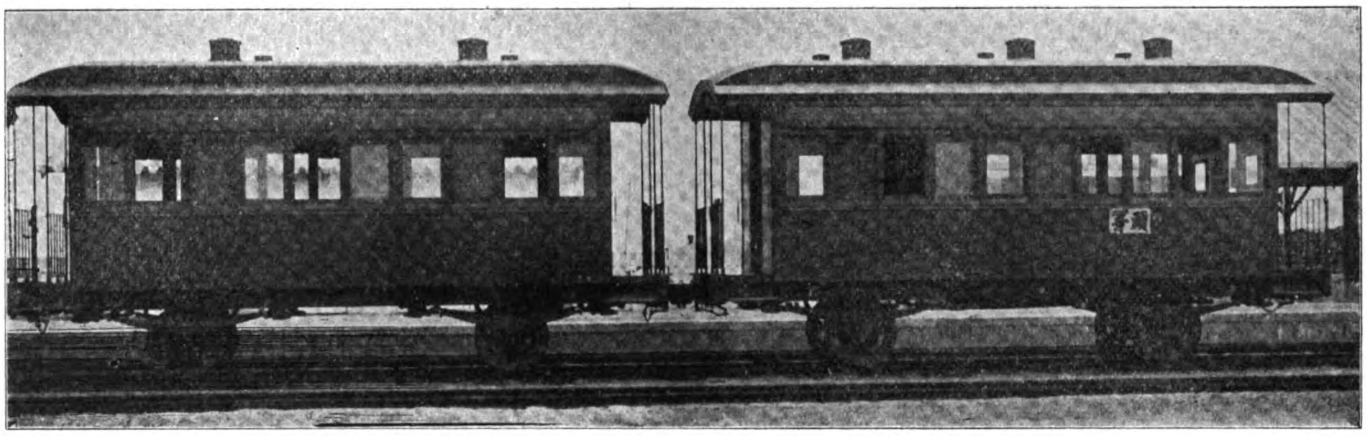


SWATOW-CHAOCHOWFU RAILWAY.—YARDS AT SWATOW

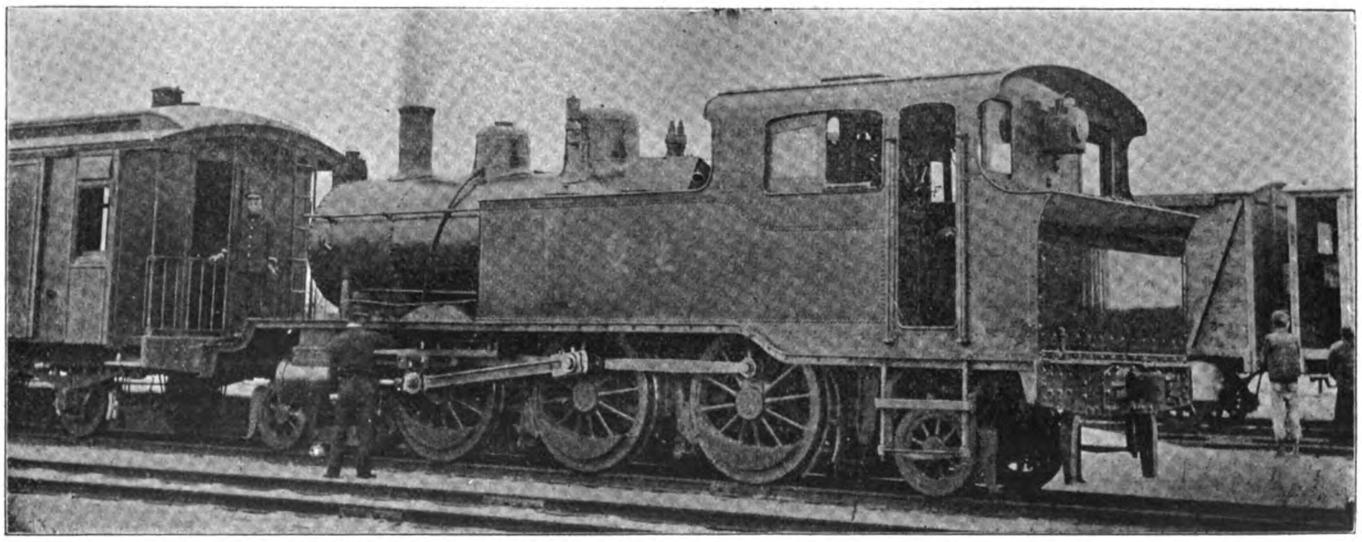
SWATOW-CHAOCHOWFU RAILWAY.—STATION AT SWATOW



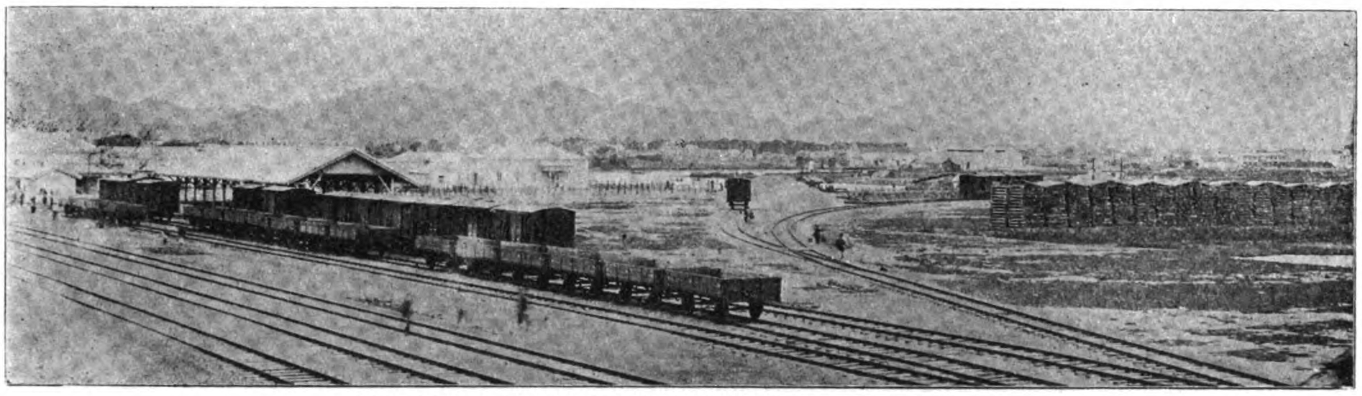
SWATOW-CHAOCHOWFU RAILWAY.—LOCOMOTIVE SHED AND SHOPS



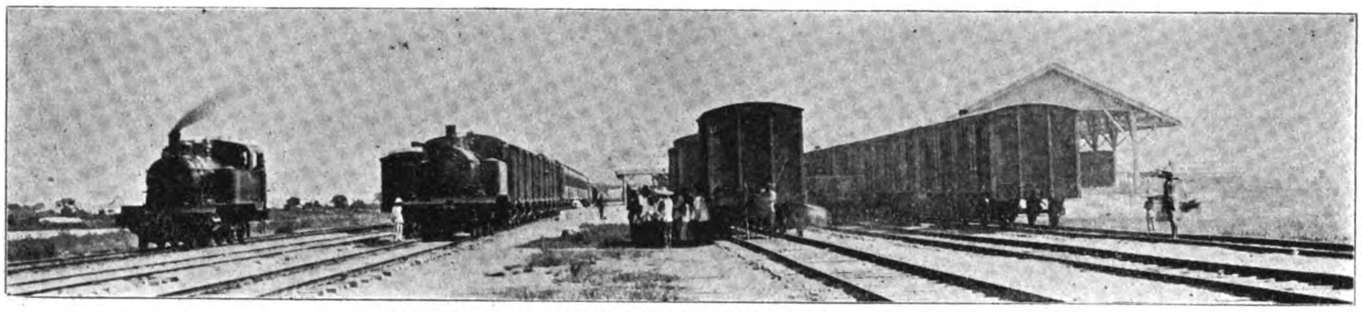
SWATOW-CHAOCHOWFU RAILWAY.—FIRST AND SECOND CLASS PASSENGER CARS



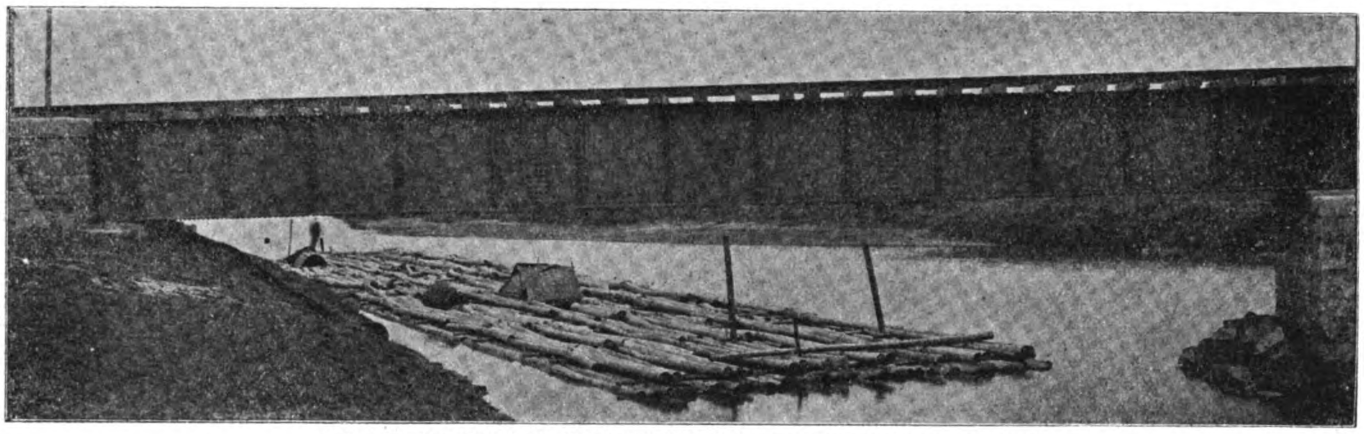
SWATOW-CHAOCHOWFU RAILWAY.—AMERICAN SADDLE TANK LOCOMOTIVE



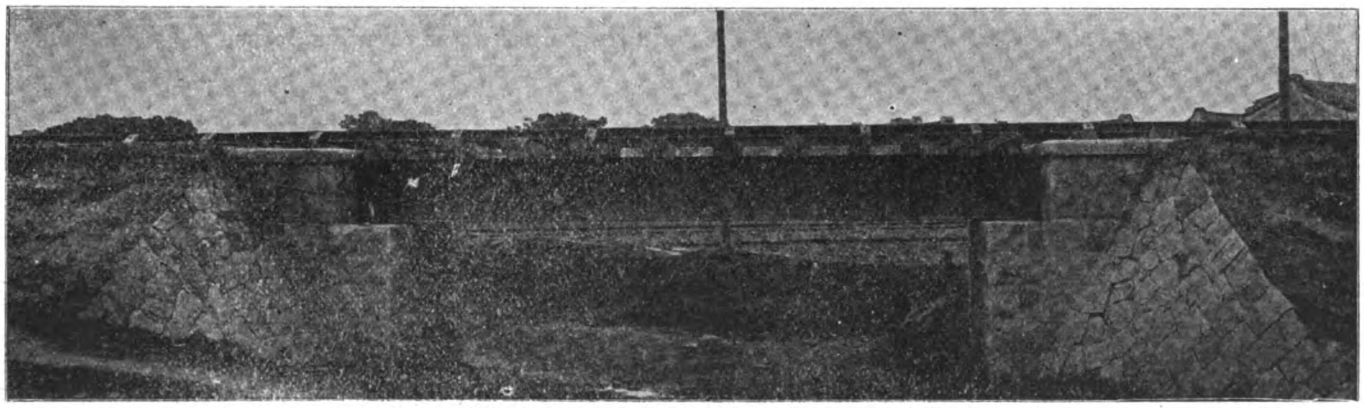
SWATOW-CHAOCHOWFU RAILWAY.—YARD AT SWATOW



SWATOW-CHAOCHOWFU RAILWAY.—YARD AT SWATOW



SWATOW-CHAOCHOWFU RAILWAY.—GIRDER BRIDGE ON LINE



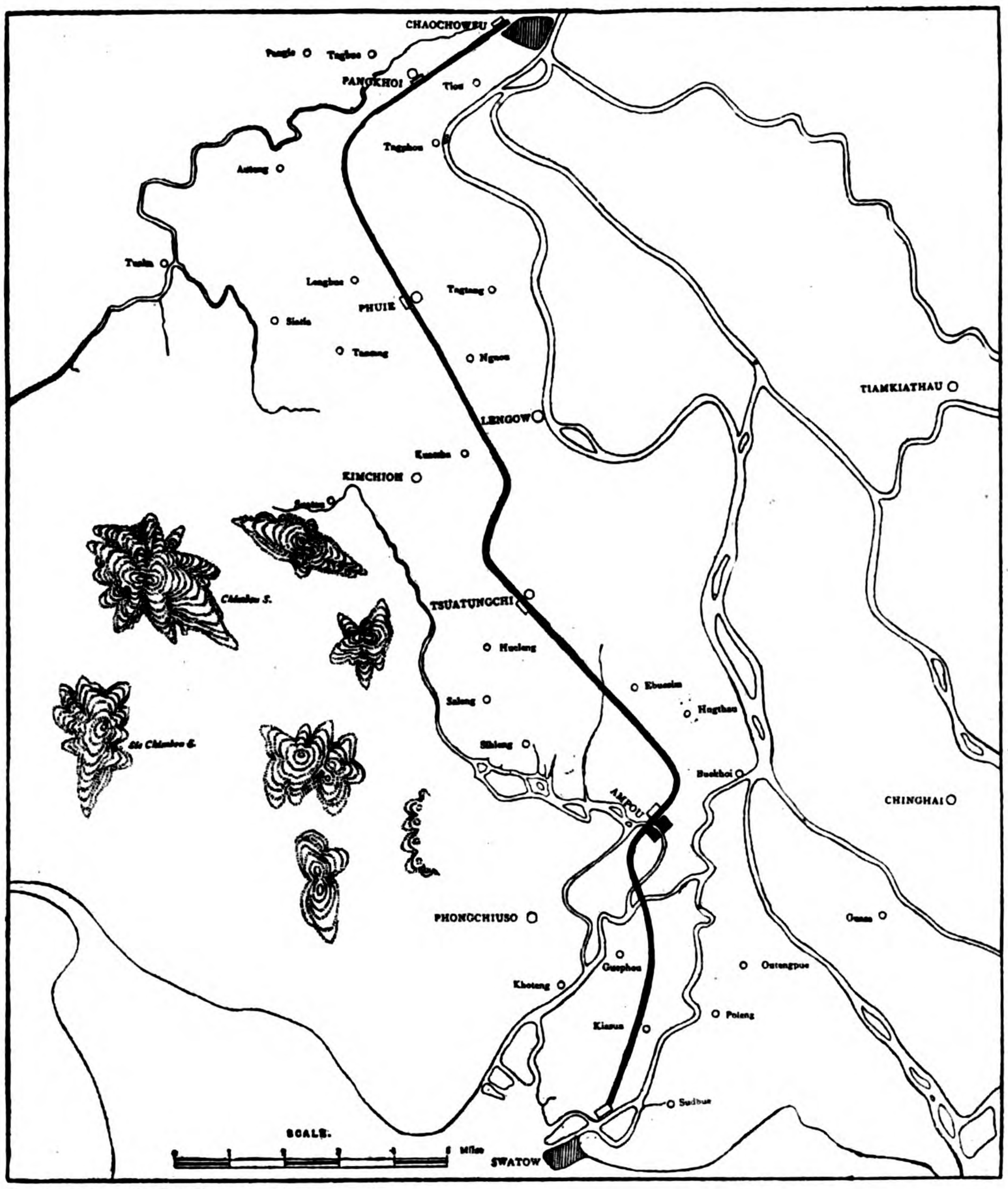
SWATOW-CHAOCHOWFU RAILWAY.—GIRDER BRIDGE ON LINE

sengers carried was 2,000. The fares per ride are 67 cents gold for first class, and 27 cents for second class. The 30 miles are made in about one hour and thirty minutes.

The engineers and conductors and the train dispatcher are Japanese, but the ticket collectors on the trains and all other employees are Chinese. The dispatching is done by telephone.

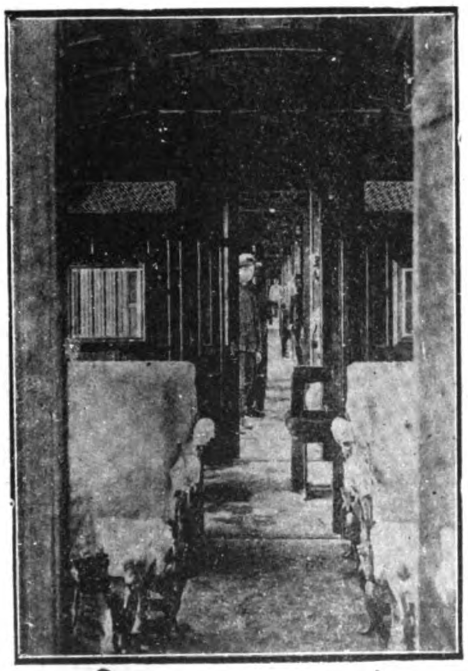
The completion of this line caused a great inflation of local land values, but prices are now again normal. A considerable number of Japanese experts are still employed on the railway, and it is due to their efforts that the line is run in a practical manner, according due consideration to the wants of the native passengers.

It was proposed to extend the line to Iki, the object being to build up a freight carrying trade from that district. It was also intended to bring the line direct to the harbour shore at Swatow, but owing to the great expense of filling in the foreshore, the project has been dropped for the time being. Steps have been taken to survey the proposed Whampoa-Amoy line, and the country about Hoifung, Lukfung, Wailai, Puning and west of Kityang, has also been surveyed. It is intended to bring the line east of Chaochowfu to Huangkang on the coast, and from there to Chaoang and Amoy.

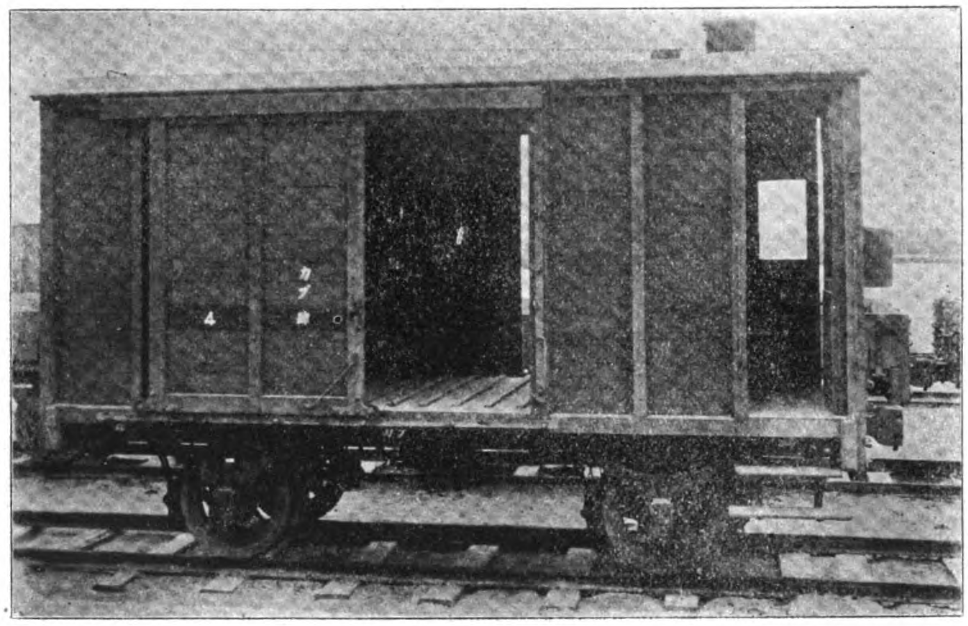


Reprinted from the Far Eastern Review

MAP OF THE SWATOW-CHAOCHOW-FU RAILWAY



SWATOW-CHAOCHOW-FU RAILWAY.
—INTERIOR OF FIRST CLASS COACH



SWATOW-CHAOCHOW-FU RAILWAY.—TYPE OF BOX CAR SUPPLIED BY MITSUI BUSSAN KAISHA

THE SUNNING RAILWAY

This line, which when completed will be approximately 55 miles in length, and connect Yung Yik, a point on Sunchong Creek, about seven miles from the treaty port of Kong Moon (situated 88 miles from Hongkong), with a harbor site known as Sam Kap Hoi, South West of Macao via Sunning, was opened to traffic for a distance of 40 miles in June of this year, and is the first railway financed, constructed and operated by Chinese in any part of the Chinese Empire. It runs through Sunning district, one of the most populous and prosperous sections in South China with a population of about 1,000,000 natives most of whom have been in contact with foreign influence and are large purchasers of foreign goods.

The company was organized with a capital of $2,660,000 (Mex) of which the sum of $2,000,000 was furnished by Chinese living in America and the balance subscribed by the Chinese merchants of Hongkong.

The first section opened for traffic was fifteen miles in length and connected Kung Yik with Sunning City. The formal opening of this section took place on January 6th, 1908. In June of the present year the line was opened for an additional section of 25 miles and work is progressing on the construction of the balance of the road.

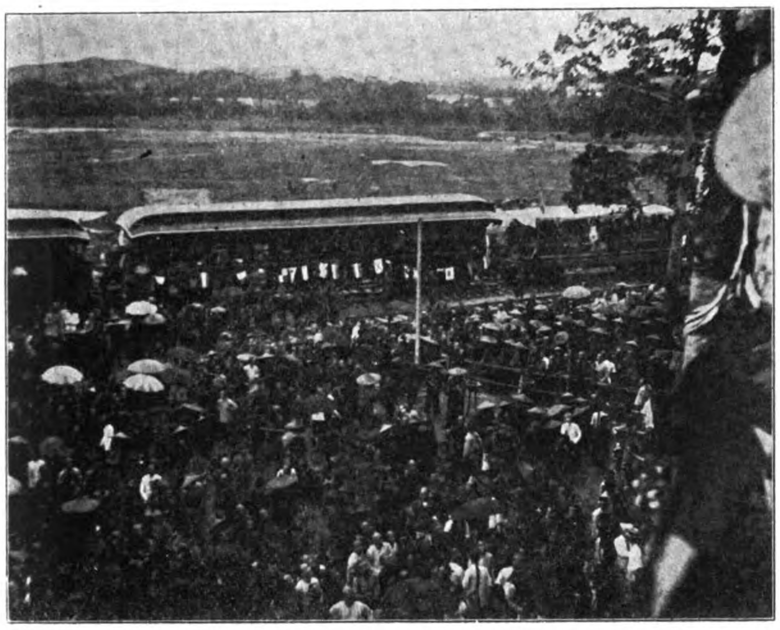
This line is of standard gauge (4 feet 8.5 in.) and is laid with 60 pound steel. The steel was purchased in Belgium and Germany and the tie plates, which are used on the curves and on every third tie on tangents, were purchased in Germany.

The rolling stock comprises six American and three German locomotives. One of the American locomotives is a small switch engine and the other five also from the Baldwin Locomotive Works, Philadelphia, are divided into two of 60 tons each and three of 65 tons each. The German locomotives are of the usual continental type with coal bunkers, saddle tank, short wheel base and outside connected drivers. One of these is 40 tons and two of 25 tons each.

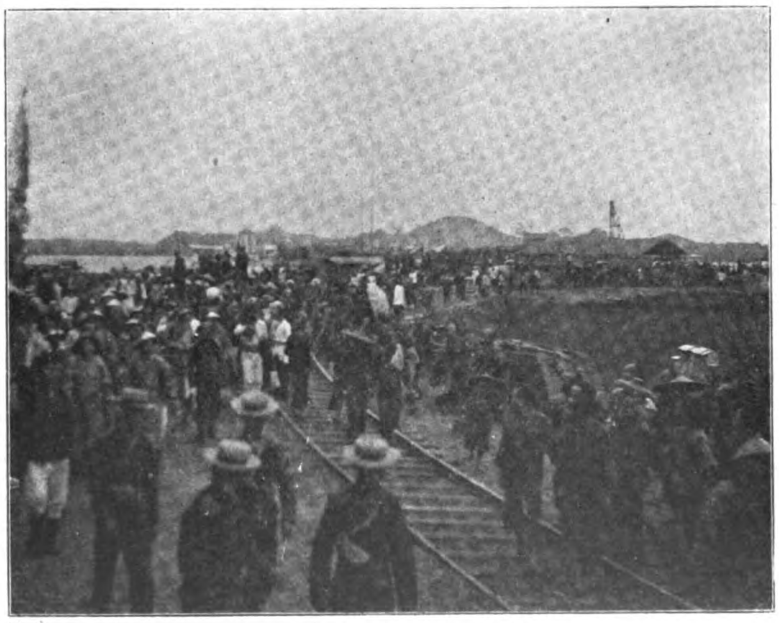
The road is equipped with eight first class coaches of American corridor type, fifty box and fifty flat cars. The flat cars are of American design and of 30-ton capacity each. A number of the box cars are fitted with windows and seats and are being utilized as second class coaches. All of the rolling stock is equipped with American air brakes.

The European type of side buffers are used and the couplers are of screw and ball type with link and hook connections to the draft gear. It was found, however, that the buffers as utilized were not suited to conditions and not a few were broken off on the curves on the initial trip over the line.

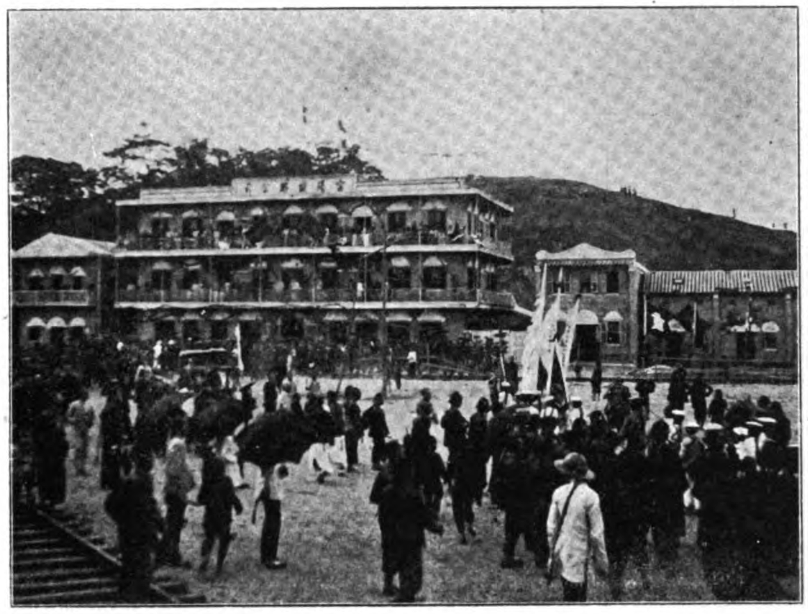
The coaches referred to were built by the Harlan & Hollingsworth's Company of Wilmington, Delaware, and the flat cars by Fitz-



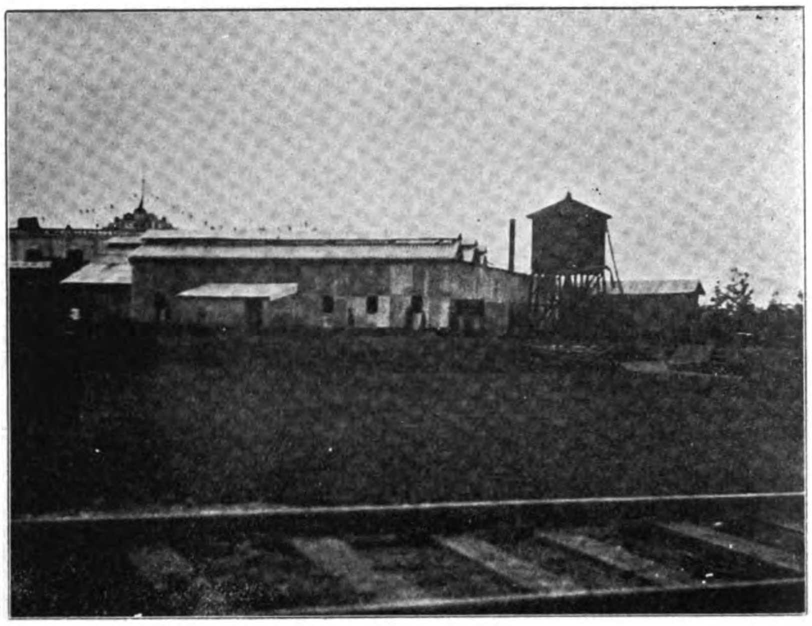
SUNNING RAILWAY.—SCENES ON THE OFFICIAL OPENING DAY



SUNNING RAILWAY.—SCENES ON THE OPENING DAY



SUNNING RAILWAY.—OFFICES AND MAIN STATION AT SUNNING



SUNNING RAILWAY.—SHOPS AND TANK AT SUNNING

hugh Luther & Co. of Chicago and the Middletown Car Works of Middletown, Pa.

The cost of the line is variously estimated from $30,000 mex. to $34,000 per mile. Most of the gradients are comparatively low with the exception of one or two curves of heavy grade. To avoid tombs and graveyads, the line was laid out with some very sharp curves and with no tangents of any considerable length. The culverts are of stone and otherwise of cast-iron pipe, but many of them are of open design and crossed by open timber trestles. The timbers used are China fir and Borneo and Straits Settlements hardwoods. The sleepers were also made from hardwood from the Straits and all this timber was treated to protect it from the ravages of the white ant. Some of the trestles are of considerable length and were built with pile bents and timber spiked and bolted. Temporary mat sheds took the place of stations during the early part of the traffic, but at Kung Yik and at Sunning City the stations are very commodious. The one at Sunning is a three-story building and includes the general offices of the company and a restaurant. The company intends to maintain an uptodate hotel at this point as well.

The line is not provided with many switches, or sidings for the reason that most of the traffic is through passengers and freight. One siding at a station is the rule and an extra siding the exception.

At Sunning and Kung Yik yard ample accommodations are provided, although at Sunning the curves are generally very sharp. American water tanks have been erected at Sunning and Kung Yik.

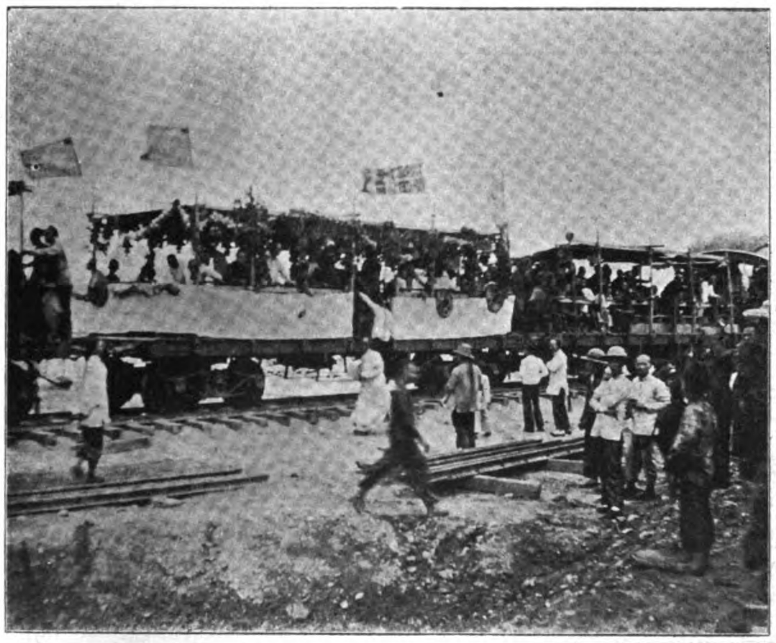
The company has installed a complete system of telephones throughout. Swedish instruments are used and have given satisfaction.

In the construction work American dump cars and tools were utilized almost entirely and had it not been for the boycott at the time of construction it is not improbable that American manufacturers would have secured the orders for all the construction supplies and equipment.

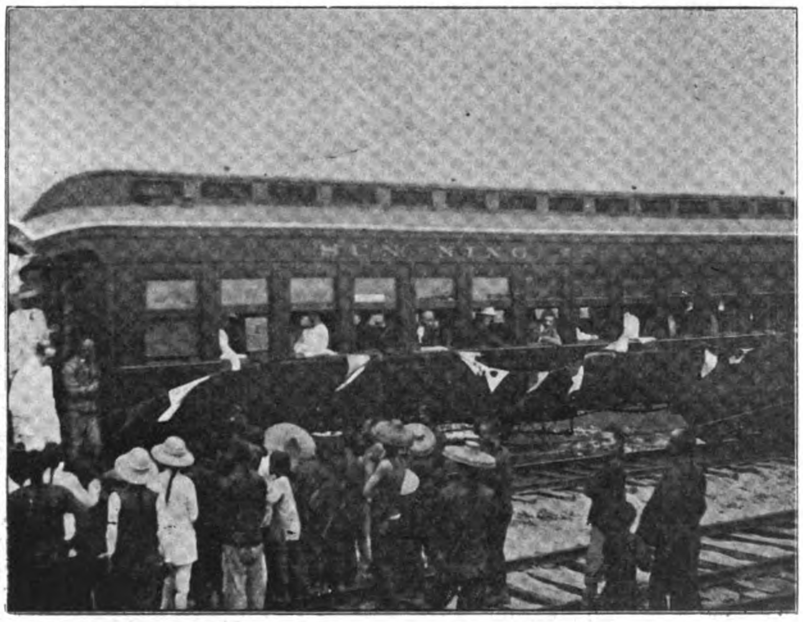
The earthwork was let by contract, but the tracklaying was supervised by the railway management. Labor cost on an average of 50 cents Mex. a day (a high wage for Chinese labor) and the right of way cost from $15 to $900 Mex. per acre.

It might be said to be an American railway built by Chinese. This is due to the fact that Mr. Chin Yee Hee, the President, Chief Engineer and General Manager, gained his knowledge of railway matters in America where he resided for over 40 years. Not only is this true but the Chinese residents in America who subscribed the most of the capital had every confidence in the President and were not in favor of anything but American railway practice in construction and operation. The Chinese of the Sunning District are very proud of this line in view of the fact that not one foreigner is employed and not one cent of foreign money is invested in the enterprise.

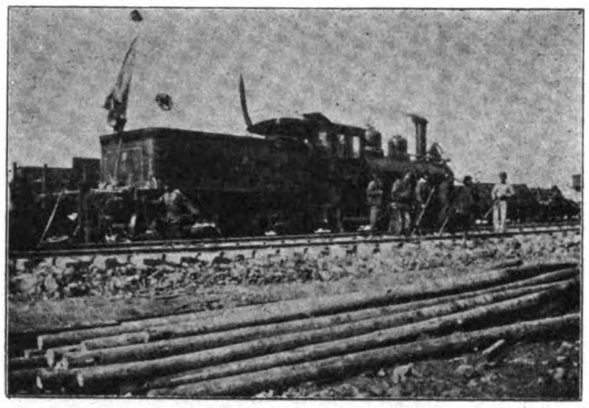
President Chin Yee Hee makes his headquarters at the company's offices at 151 Connaught Road, Hongkong, while not out on the line looking after the company's interests there. It is said that the success of the enterprise is largely due to President Hee. He made it a



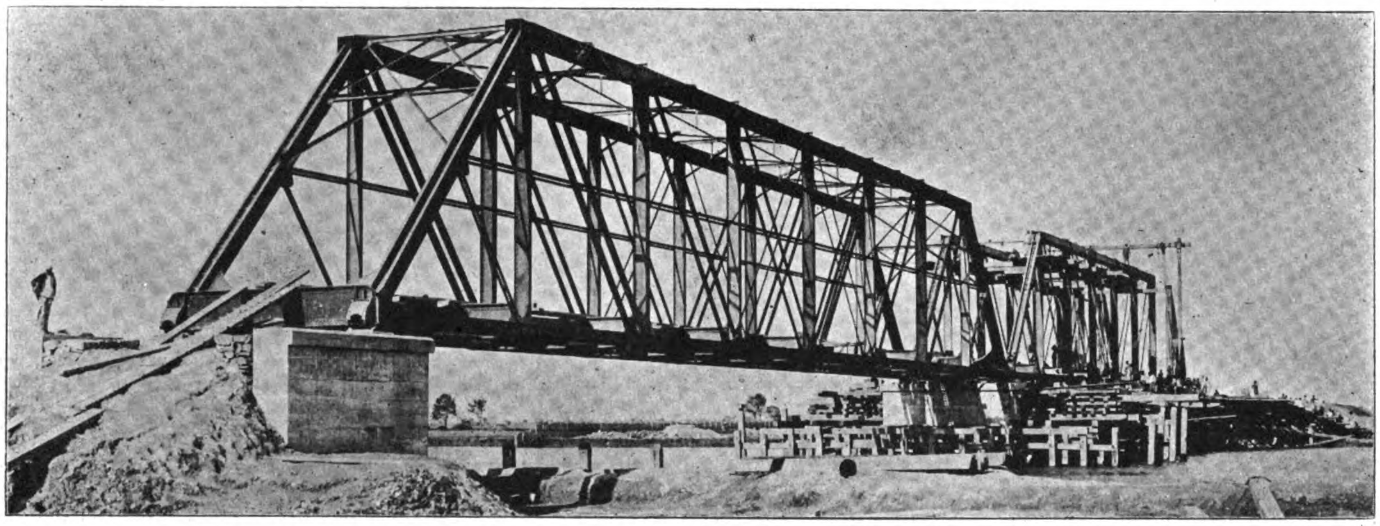
SUNNING RAILWAY.—OPENING DAY



SUNNING R'Y.—AMERICAN (HARLAN & HOLLINGSWORTH) CARS



SUNNING RAILWAY.—BALDWIN LOCOMOTIVES



KIANGSU RAILWAY.—BRIDGE OVER ZIA-TANG

point to respect the wishes of the natives and refrained from interfering with their superstitions. This was shown particularly in avoiding the graves and monuments the removal of which, according to the best Chinese superstition, would bring bad luck.

This company is already endeavoring to secure permission to extend northward to connect with the Canton-Hankow at Fatshan from Kong Moon, but this extension will prove very expensive and may not be realized for some time. There is also some opposition on the part of the Canton-Hankow Railway.

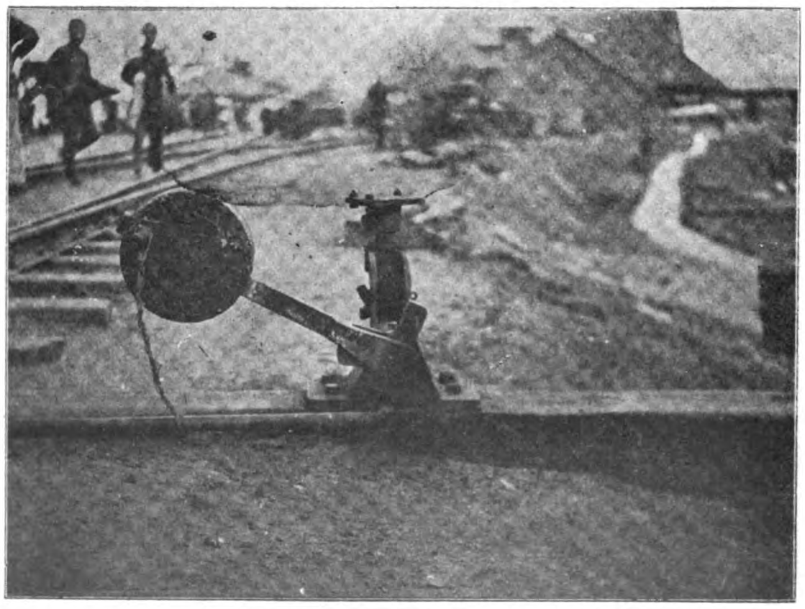
The new harbor and treaty port proposed at Sam Kap Hoi as terminus of the railway is reported feasible by the Imperial authorities and is now being considered. With the opening of this harbor and the final extension of the present line northward to connect with the Canton-Hankow, the rich and enterprising district of Sunning will not only have access to a fine port but some day may boast railway connection with the capital of the Empire. From present indications the line will be completed to Sam Kap Hoi early next year.

The Kung Yik terminal is really a port reclaimed by the natives of Sunning District in 1905. Its area is about 100 acres, of which the railway occupies about half with its station, yard offices, warehouse, machine shops, and foundry. At Sunning, the railway has a printing office and machine shop.

The salary paid the president of this line is possibly the lowest received by the head of any railway in the world. President Hee signs a voucher for $80 Mex a month and the master mechanic is satisfied with $40 Mex. a month. The schedule of wages to employés run from $45 Mex. a month to engine drivers to firemen at $18 Mex. a month and coolies $15 Mex.

At present the 40 miles in operation over which there are three trains from either end daily show gross daily receipts amounting to about $600 Mex., while the daily expenses does not exceed $350 Mex

SUNNING RAILWAY.—FREE RIDES FOR EVERYBODY



SUNNING RAILWAY.—SWITCH STAND

THE TAO-CHING RAILWAY

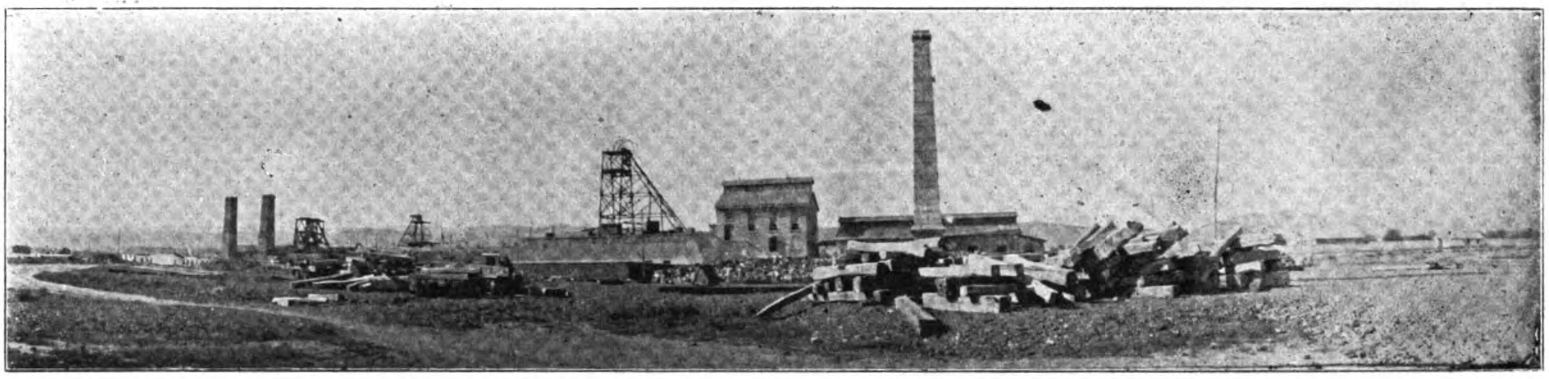
(Imperial Chinese Government Honan Line) Pekin-Syndicate Railway

The Pekin Syndicate was organized in 1897, in London, with a capital of $100,000 by British and Italian capitalists and had for its purpose the development of the almost inexhaustible mineral wealth of Shansi and Honan. After some delay negotiations were concluded in 1898 for a concession to develop the coal, iron and petroleum deposits within certain boundaries in the province of Shansi. A little later the concession was extended to cover that part of Honan north of the Yellow River. The capital of the company was then increased to $7,600,000. The question of transportation became one of the most important problems to solve and it became necessary to provide railway transportation from the mi es to the most convenient waterways. The concession provided for this contingency in a general way and has been interpreted as not only giving the right to construct a road to the nearest tributary of the Yangtsze, but to the Yangtsze itself, or in other words a general permission to construct lines at the discretion of the Corporation. The 17th Clause of the Pekin Syndicate concession reads:

"Whenever it may be necessary for any mine to make roads, build bridges, open or deepen rivers or canals, or construct branch railways to connect with main lines or with water navigation to facilitate transport of Shansi coal, iron and all other mineral products from the province, the Syndicate on reporting to the Government of Shansi is authorized to proceed with the works, using its own capital without asking for Government funds."

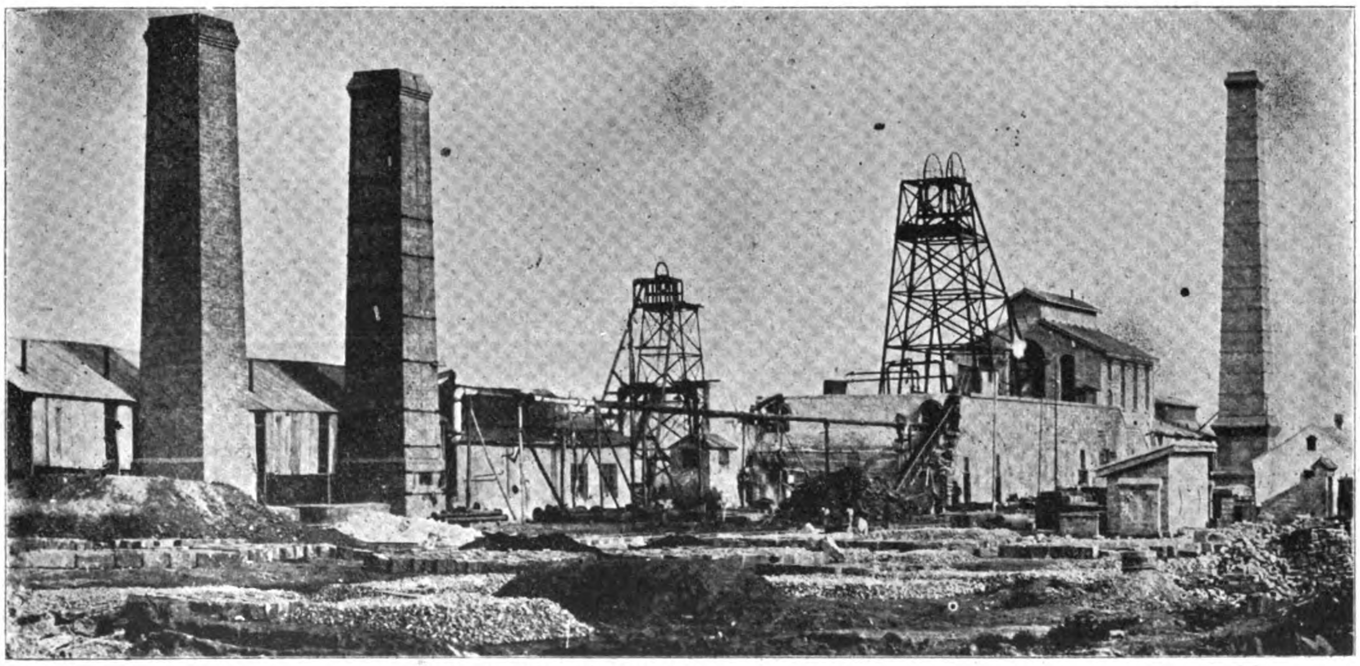
The Chinese state that their sense of this clause is naturally restricted to merely local requirements, but the Syndicate has read into it a right to construct a trunk line if necessary from Shansi to the Yangtsze, which argument, if followed to its logical end, entitles them to build roads to any market in China at their option. The surveying party sent out by the Syndicate in 1898 directed their energies towards finding a line to the Yangtsze and surveyed a route over 200 miles to Siangyang on the Han River, but finally struck out across country towards Nanking and the mouth of the Yangtsze, and recommended a line over 350 miles long to Pukow.

The surveys through Southern Honan to the Han River to Siangyang were unfavorably reported as it was found that the water was not deep enough for the purpose at this point. Another line was surveyed to Pukow and this

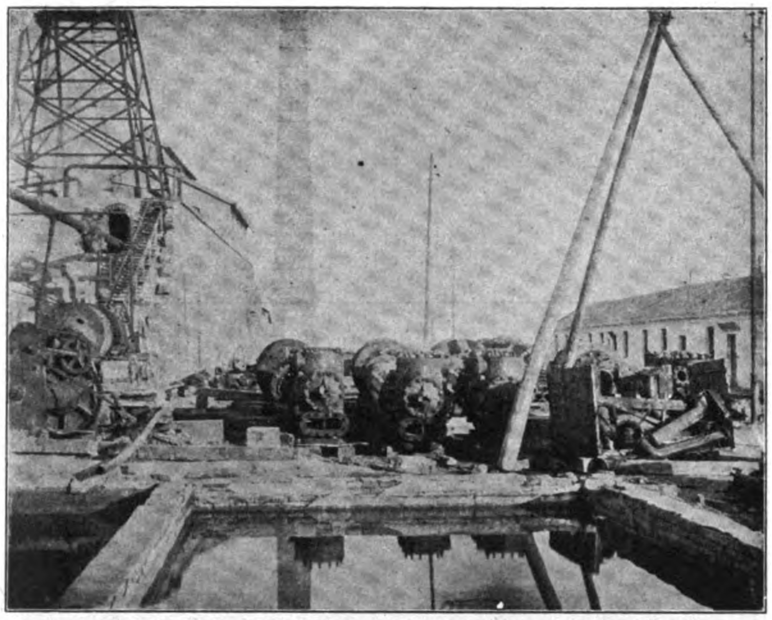


TAO-CHING RAILWAY.—GENERAL VIEW OF PEKIN SYNDICATE MINES

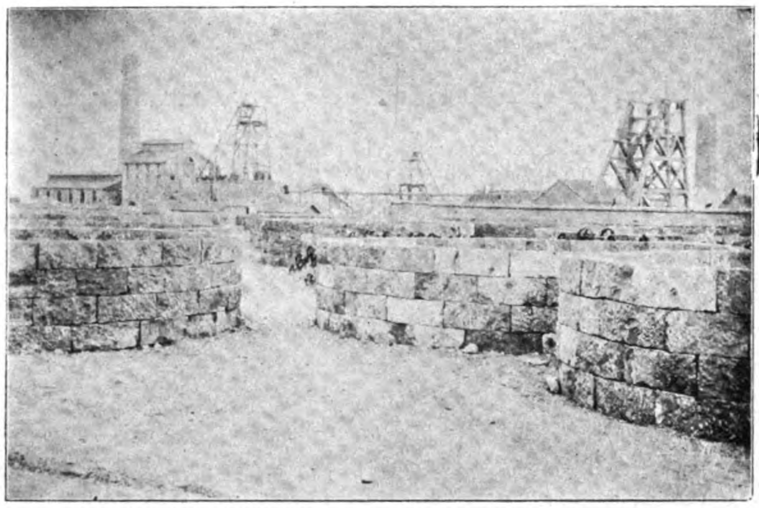
TAO-CHING RAILWAY.—RAILWAY POLICE



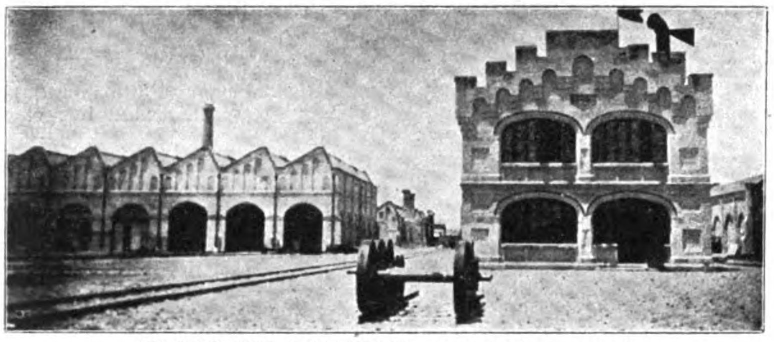
TAO-CHING RAILWAY.—JAMISEN COLLIERY



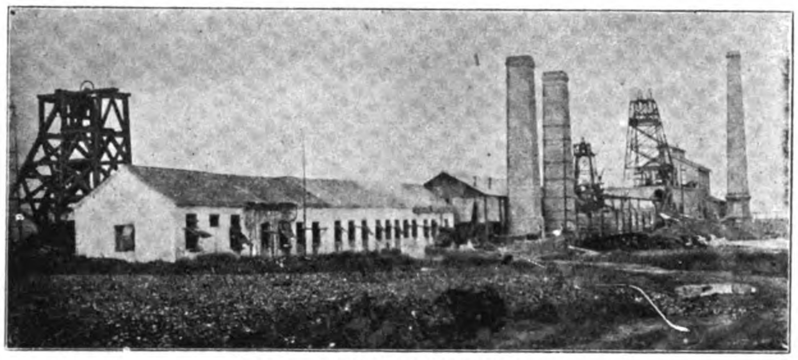
JAMISEN COLLIERY.—PUMPS AWAITING INSTALLATION



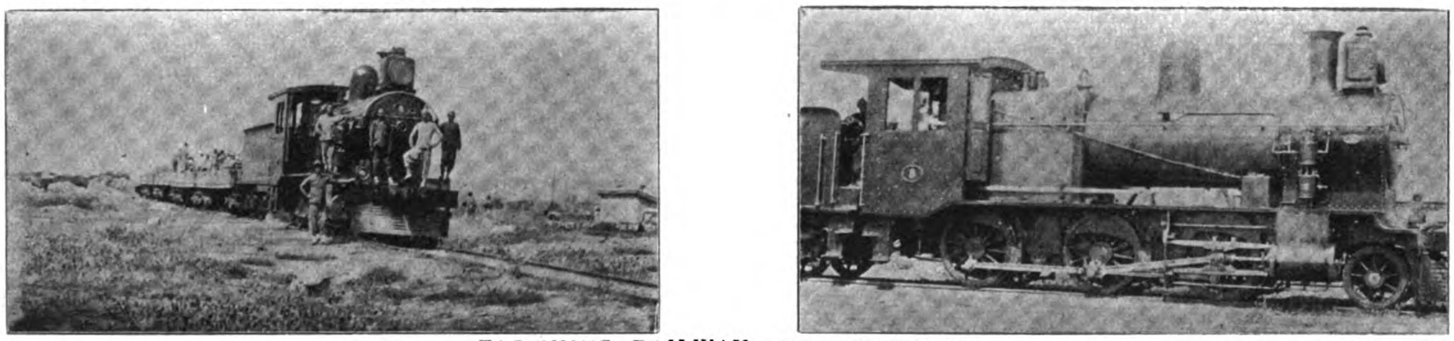
JAMISEN COLLIERY.—CUT STONE FACING FOR SHAFTS



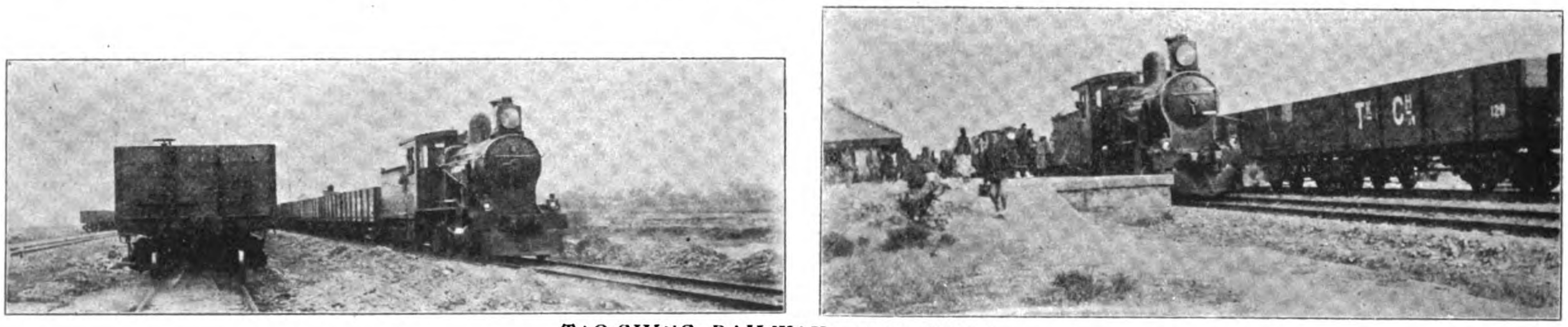
TAO CHING RAILWAY.—OFFICE AND SHOPS



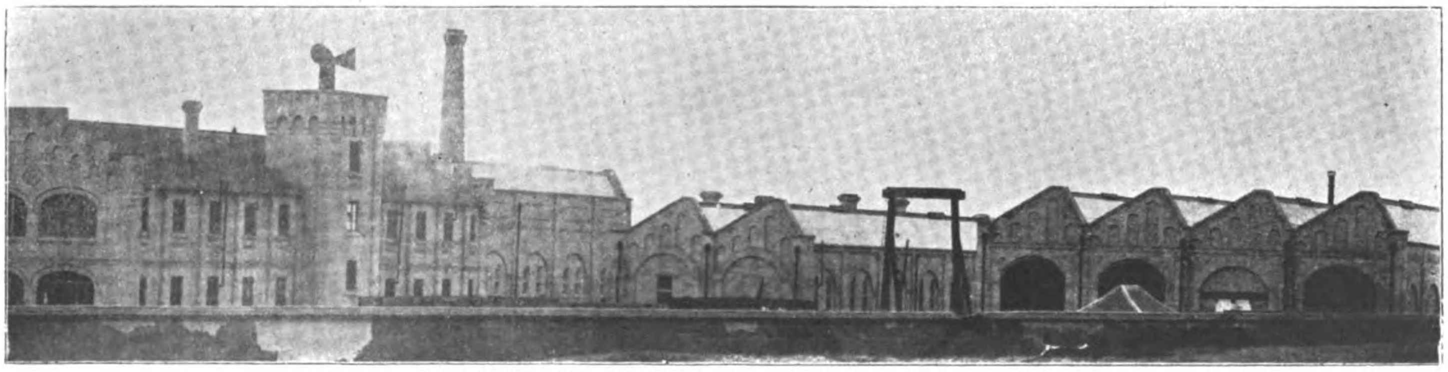
JAMISEN COLLIERY



TAO-CHING RAILWAY.—LOCOMOTIVE TYPES



TAO-CHING RAILWAY.—COAL TRAINS



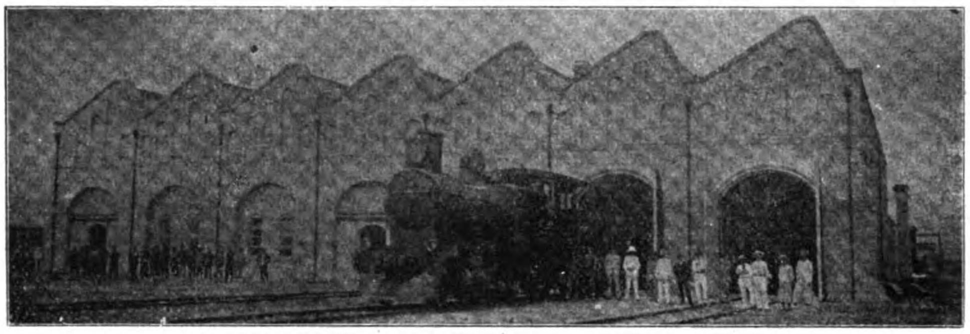
TAO-CHING RAILWAY.—CAR AND LOCOMOTIVE SHOPS

TAO-CHING RAILWAY.—YARDS

TAO-CHING RAILWAY.—COAL TRAIN

latter was recommended as the most desirable route and objective point. A survey was also concluded connecting Taoku at the head of navigation on the Wei River in Northeastern Honan to Tzechoufu in Shansi. The work of construction on the line was commenced in 1900, but this had to be delayed on account of the Boxer trouble. In 1902 work was renewed and a mining camp was established at Jamieson in Northern Hunan. With the establishment of this camp it was decided to construct a line from Taokou to Pashan, a slight modification of the regular survey. The line runs from Taokou to Sinsiang-sien by way of Weihu continuing through Jamieson to Pashan. From there it will be continued to Tzechoufu. The line from Taokou to Pashan was completed in 1905, covering a distance of 92 miles approximately.

About the same time as the surveys were taking place in 1898 the British and Chinese

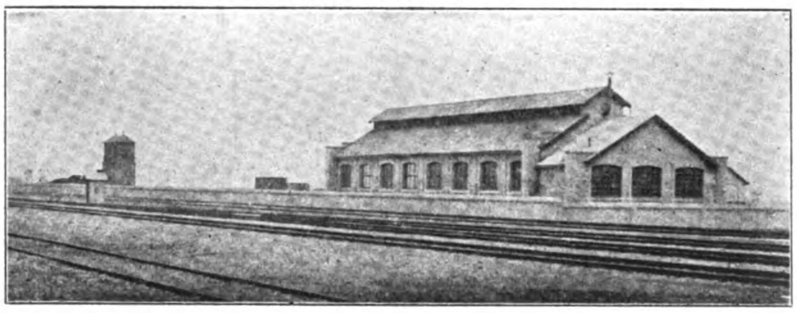


TAO-CHING RAILWAY.—LOCOMOTIVE SHOPS

TAO-CHING RAILWAY.—COAL TRAIN

Corporation, a rival syndicate having the support of the Government, was conceded the right to build the Tientsin Pukow Line and the Pukow-Sinyang line, as compensation for the slight to British interests, in granting the Peking-Hankow line to Belgium. The situation created conflicted with the schemes of the Pukow-Syndicate. This difficulty was subsequently solved by a combination of the two companies for equal participation in all future railway development north of the Yangtsze, and it is hoped that some time in the future to construct a line from the mines to some point on the proposed Pukow-Sinyang line. The Chinese have realized their error in committing themselves to such an indefinite agreement, secured at a time when they were ignorant of its value, and have set to work to undo their mistakes by purchasing the railway at its construction value. To this end an agreement was entered into in July, 1905, in which the Chinese Government agreed to take over the line from the Syndicate and give in payment gold bonds bearing interest at 5% and the control of the road would remain with the Syndicate until the bonds are redeemed. The cost of constructing the road to Pashan was estimated at £614,600 and is represented by a loan of £700,000 which is accepted by the Syndicate at 90. The loan runs for thirty years and is redeemable after 1916. While the line has been handed over to the Chinese Railway Administration it continues to be operated by the Syndicate, the latter receiving 20% of the net profits. The continuation of the line to Tzechou and provision for its construction was also included in the agreement.

TAO-CHING RAILWAY.—WAITING FOR THE TRAIN

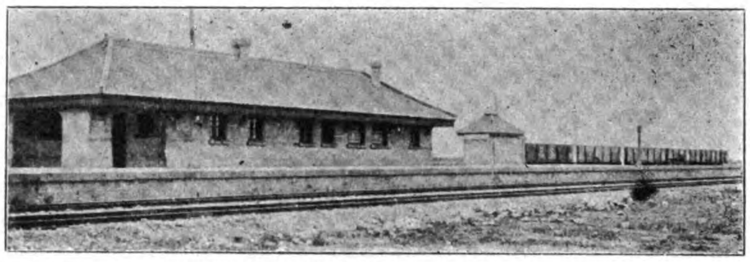


TAO-CHING RAILWAY

SIN-SIANG-SIEN STATION

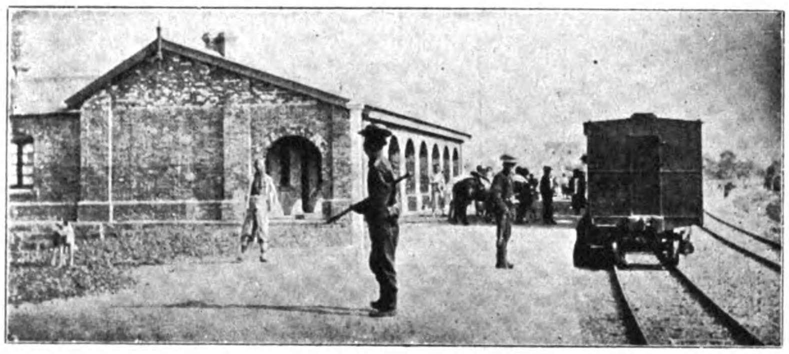
SHOPS AND WATER TANK

TAO-CHING RAILWAY.—CHING-HUA STATION

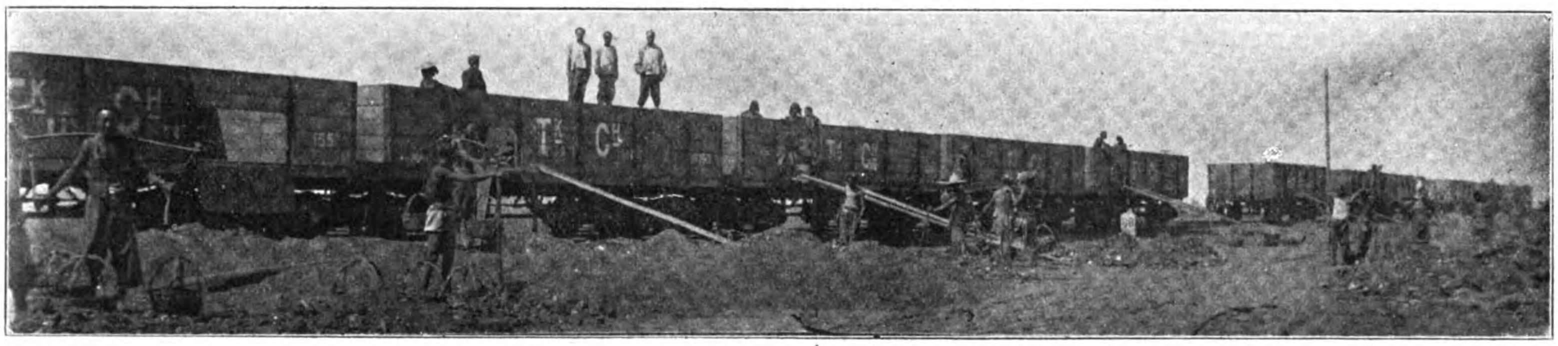


TAO-CHING RAILWAY.—CHIAO-TSO STATION

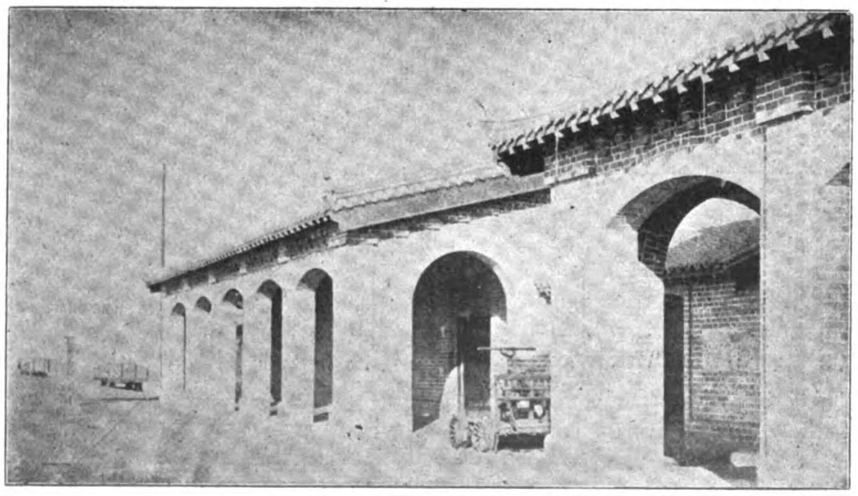
So while the Chinese have the satisfaction of owning the road, they paid for this luxury 10% more than it cost, in addition to the 5% interest charges for the 30 year life of the loan, and giving the Syndicate 20% of the net profits for operating it, following the general rule of railway loans that Chinese are too corrupt to handle loan funds without check on accounts and expenditures. Truly it was a wonderful deal, in which the much criticized Canton-Hankow redemption finds a parallel, but the Chinese were anxious to pay the price to oust the foreigner, so the latter cannot be censured. Mr. Kent in his work on "Railway Enterprise in China" observes that "the Syndicate has not in any sense abandoned its rights which have been clearly recognized by the Chinese Government, and Pukow, as the possible objective terminus, is still kept in view; though probably in the event of the construction of the Pukow-Hsinyan Line, some point in the British Section of the Tientsin-Pukow Railway would be selected as the terminal of any future line from the concession area in North Honan and Shansi." And here we have the germ of a possible future dispute and more political pressure brought to bear on poor old China to force her to live up to the ambiguous clause of a commercial concession. The same argument would be sufficient to justify the construction of a road from Honan to connect with the Szechuen Railway or with any other road or outlet to a new market. It is difficult for an impartial observer to distinguish between such reasoning when indulged in by the British holders of an indefinite agreement, and the Japanese reading of a similar document as in the Fakumen dispute. Of course the Chinese Government clearly recognizes the rights of the Pekin Syndicate, as observed by Mr. Kent. At least they do so in principle, and are in no position to openly oppose the British pretensions. But those who run may read and the history of this Syndicate for the last few years



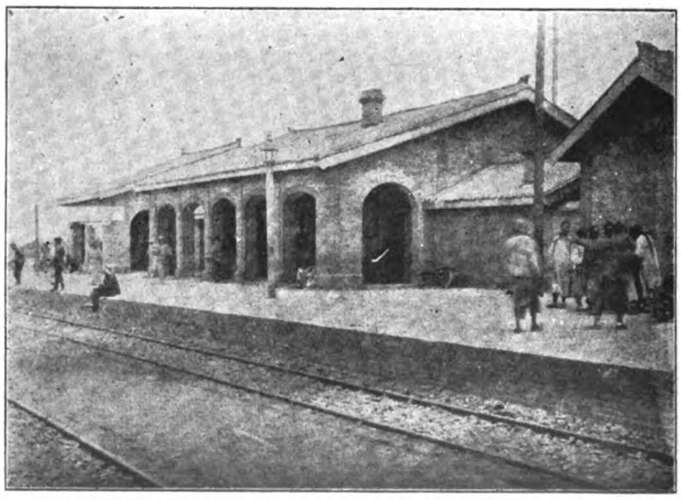
TAO-CHING RAILWAY.—CHING-HUA STATION



TAO-CHING RAILWAY.—LOADING A COAL TRAIN



SIN-SIANG SIEN STATION

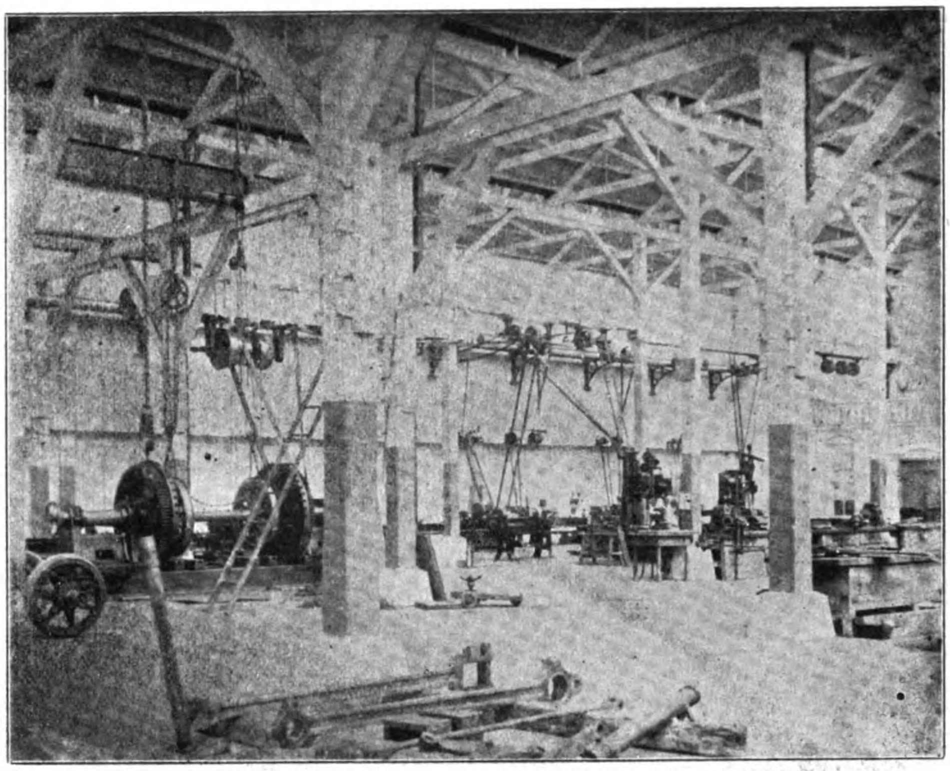


TAO-CHING RAILWAY.—TSEN TSCHKOU STATION

is an emphatic, though silent protest against this interpretation of the Clause. It may be taken for granted that in seeking to extend this clause to cover the construction of a trunk line 350 miles in length, the Syndicate over reached itself and antagonized Chinese opinion, and their subsequent trials and tribulations have arisen as a direct result The Chinese have employed the only weapon at hand to combat such a pretentious scheme, and while they cannot afford to officially protest, "the pent-up anger in the heart" exists, and against this condition nothing will suffice but a complete surrender of the rights at a fair figure. To this feeling is traceable the repurchase by China of the Shansi rights.

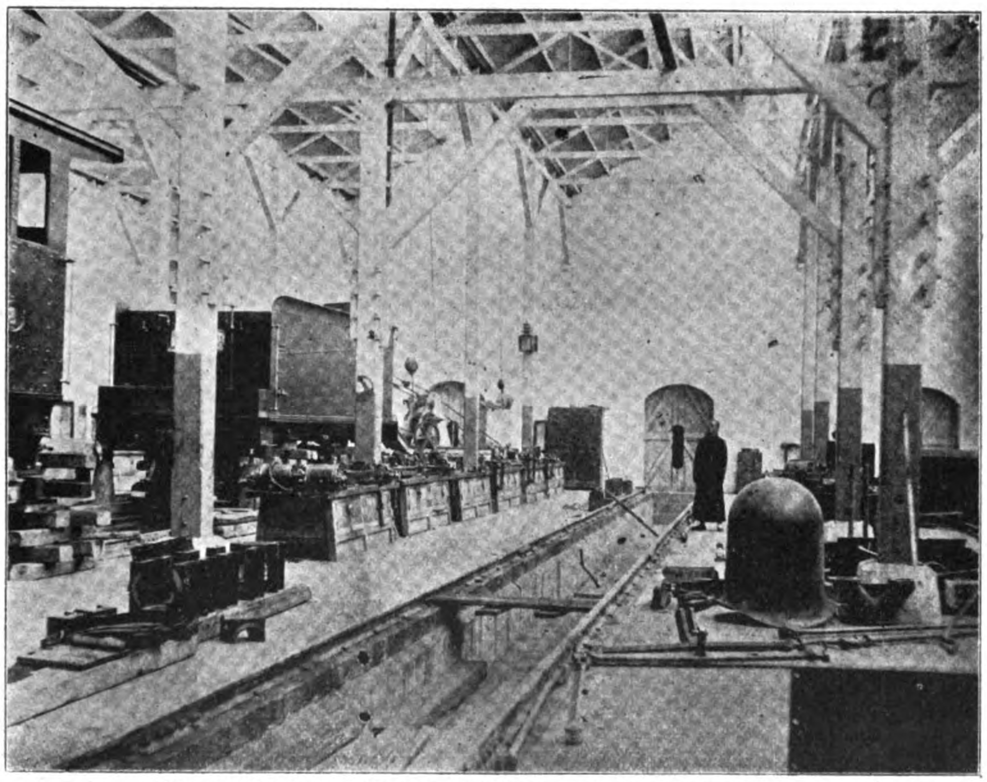
The following from the 1906 report of the Syndicate bearing on this subject may be of interest:

"The persistent refusal of the provincial authorities in Shansi to permit the syndicate to acquire land and commence mining was fully explained in last year's report. It was arranged that a prominent Shansi official, named Ting Nieh-tai, together with several representatives of the Shansi Bureau of Trade, and of the gentry, should come to Peking to meet Mr. Brown (our agent general) and endeavor to come to a settlement. Mr. Brown was ultimately instructed that the directors would surrender the concession for the sum of £1,500,000 sterling, half n cash and the balance in guaranteed instalments, and he so informed the Shansi delegates. The counter offer made on their part was Tls. 600,000. Finally, on January 4, 1908, after the offer had been by



TAO-CHING RAILWAY.—INTERIOR OF MACHINE SHOPS

TAO-CHING RAILWAY.—CHIA TSO STATION



TAO-CHING RAILWAY.—INTERIOR OF LOCOMOTIVE SHOPS

successive stages raised to Tls. 2,625,000, the delegates informed Mr. Brown that this was their last word, and if it was not forthwith accepted they would withdraw from all further negotiations. At this stage the directors again sought counsel with the Foreign Office, and were informed that, in the opinion of Sir John Jordan, this was in truth about the limit of the Shansi delegates' offer (whose attitude, he added, had recently become very uncompromising), and that there was no prospect of getting the Central Government to add to it. Under these circumstances, the directors took the respon sibility of instructing Mr. Brown to close the offer, if better terms were not to be go Fortunately, Mr. Brown was able, as a last effort, to get the offer raised to Taels 2,750,000, and with that he closed, half to be paid on Feb. 21, 1908, and the other half in three equal yearly instalments, beginning May 19, 1909. The directors have not abandoned all prospect of yet doing work in Shansi. It is part of the agreement that if hereafter foreign capital is required for mining, iron smelting, or transport of materials (meaning, presumably, railways), the Peking Syndicate shall have the first option. The directors consider the stipulation a very valuable one."

Recent reports from Shansi announce the formation of a native syndicate with a capital of Tls. 5,000,000 to take over the mining interests, but so far the funds have not been realized.

The Syndicate attaches great importance to the last agreement, and here again places liberal construction on the wording; "If hereafter foreign capital is required for mining, iron smelting or *transport of materials*, the Peking Syndicate shall have the first option." This has been presumed to mean railways, and the Directors of the Syndicate promised to make it their endeavor as soon as possible to take advantage of it.

Continued opposition has however met their attempts to market their coal in Honan, in competition with the small native shafts and the same antagonism among the gentry is recorded as obtained in the neighbouring province of Shansi. The central government is apparently powerless to intervene and regulate matters, and in the end the Chinese will emerge victorious.

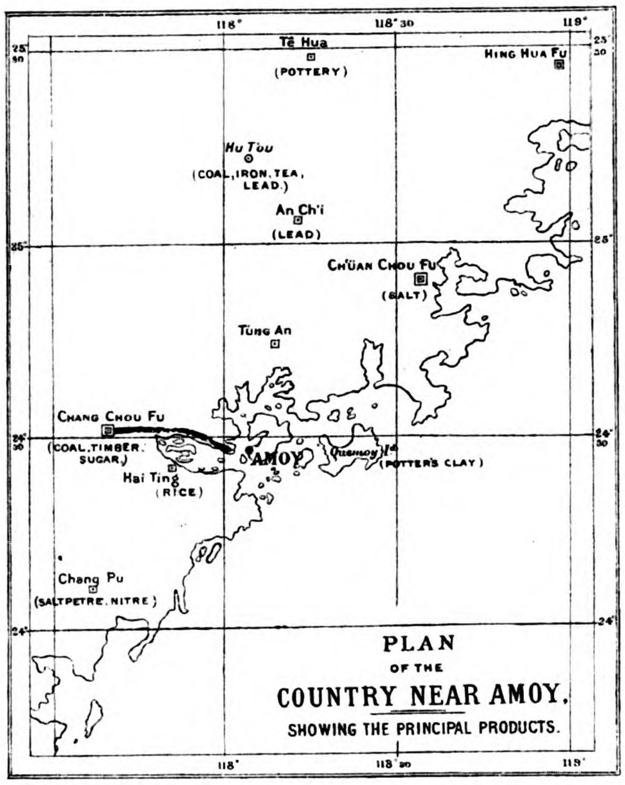
There is a moral to this story, which all Britishers should take to heart. When they complain of the breakdown of British diplomacy in face of Chinese opposition, it is well to consider some of the causes leading up to such a situation.

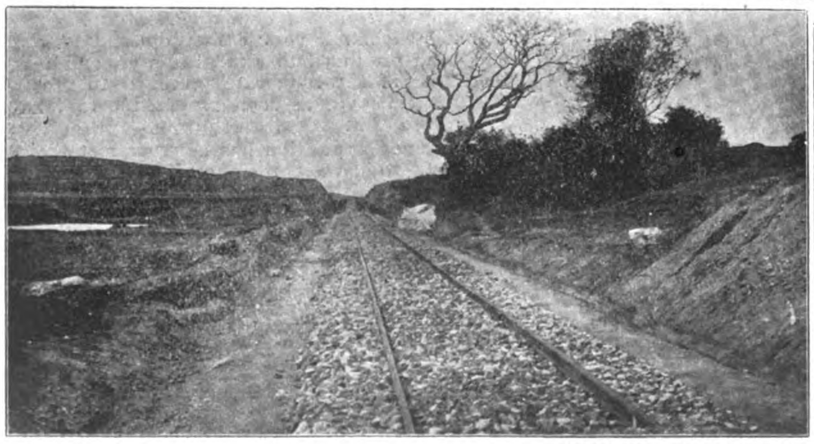
FUKIEN RAILWAYS

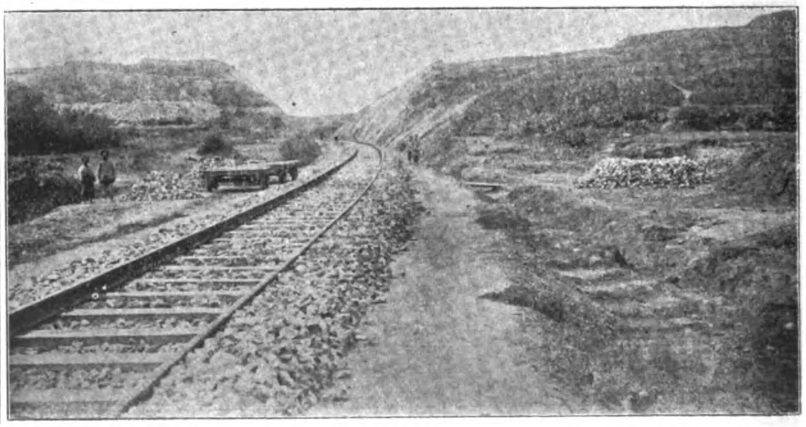
FUKIEN RAILWAYS.—DIRECTORS OF THE RAILWAY. HON. CHAU PAO, PROVINCIAL DIRECTOR OF PROVINCIAL RAILWAYS IN THE CENTER

The Fukien Railway, which is ultimately to connect this province (Fukien) with the the Province of Kwang Tung, on the south, and Kiang Si, on the west, is now well under way. The route from Amoy to Changchow, a distance of 33 miles, has been surveyed and the right of way secured, and the tracks have already been laid for a distance of 3 or 4 miles. A large construction force is now working on the road and the work is steadily progressing. The terminus near Amoy is situated on the mainland at Sung Su, 2 or 3 miles distant from Amoy city proper. It adjoins the waterfront, and large ships may come alongside as soon as the piers are built. A railway depot and car shops have already been completed, are very substantially built of brick, and present quite an imposing appearance.

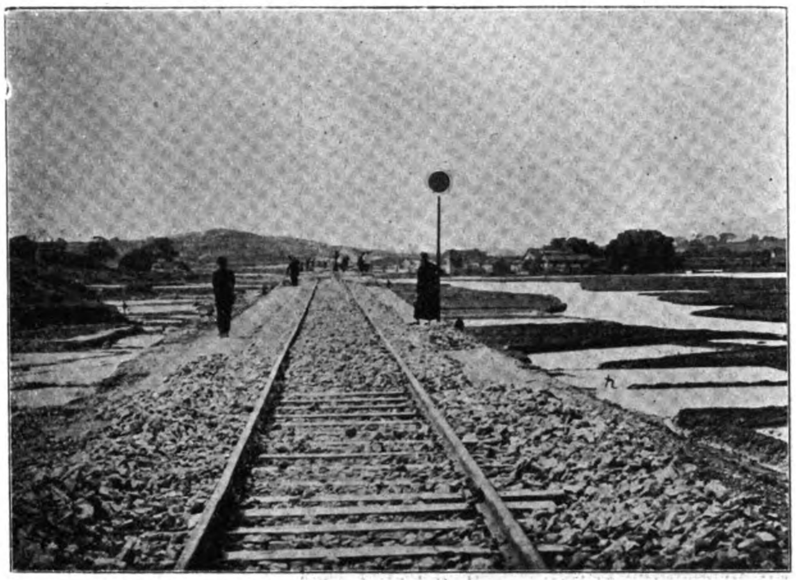
According to the prospectus of the company the railway is to connect Changchow in the center of the southern part of Fukien province with the port of Amoy. This will mean a railway about 35 miles in length and much difficult country to overcome. The company was originally formed with a capital of $6,000,000 in $5 shares on which a call of $1 has been made. All the shareholders are Chinese. In fact, the officials of the company and the engineers in charge of the work of construction are Chinese, who have had the advantages of foreign education.



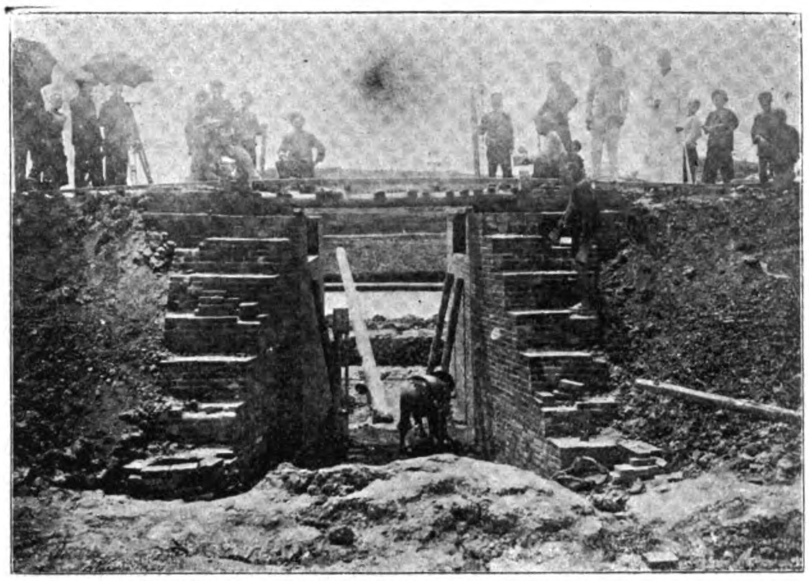




FUKIEN RAILWAYS.—SECTION OF ROADBED.



FUKIEN RAILWAYS.—LAYING TRACK NEAR SUNG-SU, AMOY

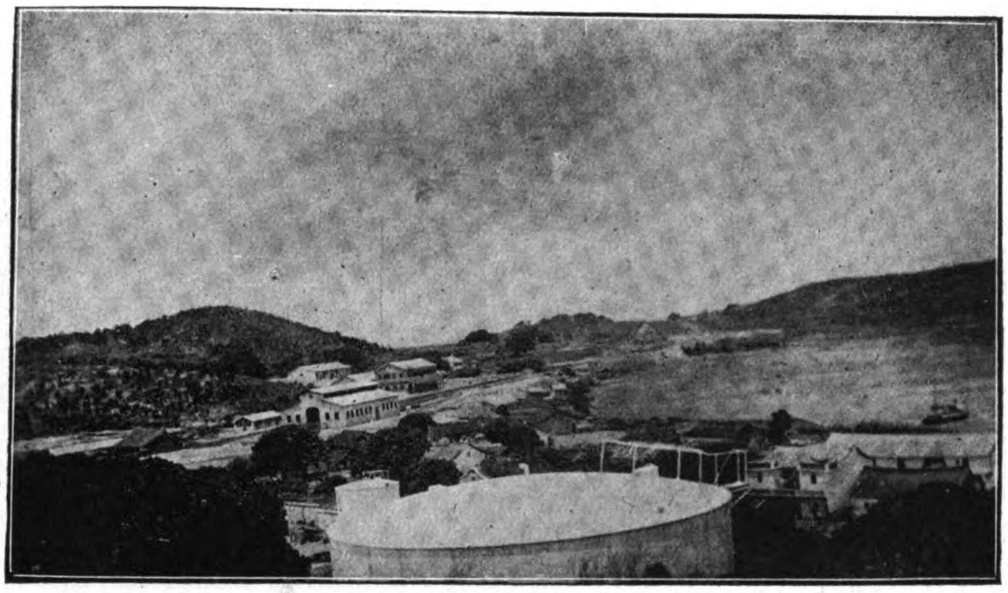


FUKIEN RAILWAYS.—TYPE OF CULVERT

FUKIEN RAILWAYS.—STATION AND OFFICES AT SUNG-SU (AMOY)

FUKIEN RAILWAYS.—CONSTRUCTING CULVERT

FUKIEN RAILWAYS.—CONSTRUCTING ROADBED. GRANITE BLOCKS FROM QUARRIES NEAR AMOY FOR ABUTMENTS



VIEW OF AMOY.—CHANGCHOW RAILWAY DEPOT AND SHOPS AT AMOY

The roadbed has been laid and grading practically completed for nine miles out of Amoy and the steel laid for about four miles. The rails for the road were all ordered from the Hanyang Iron Works in the Province of Hu-Peh, $45,000 worth having been delivered, while $75,000 worth are on the way. The contract price was about $35 per ton. The ties or sleepers are all of Japanese manufacture, some 50,000 of them having been delivered and paid for at the rate of about 53 cents a piece.

SUPPLIES FROM THE UNITED STATES.—The bridges for this road have all been ordered from the United States through the United States Steel Products Co.'s branch at Shanghai. Considerable rolling stock has also been ordered through this firm, also American couplers, turntables, and other general supplies.

Only two locomotives so far have been ordered. One is of American and the other of German manufacture. Both are now here on the field. The German locomotive has just been set up by a local engineer, and the American engine is being put together by a personal representative of the American locomotive company which manufactured it. The two locomotives are of similar type and each cost about $9,000. Additional locomotives will doubtless be ordered according to whichever of the two locomotives proves the more satisfactory.

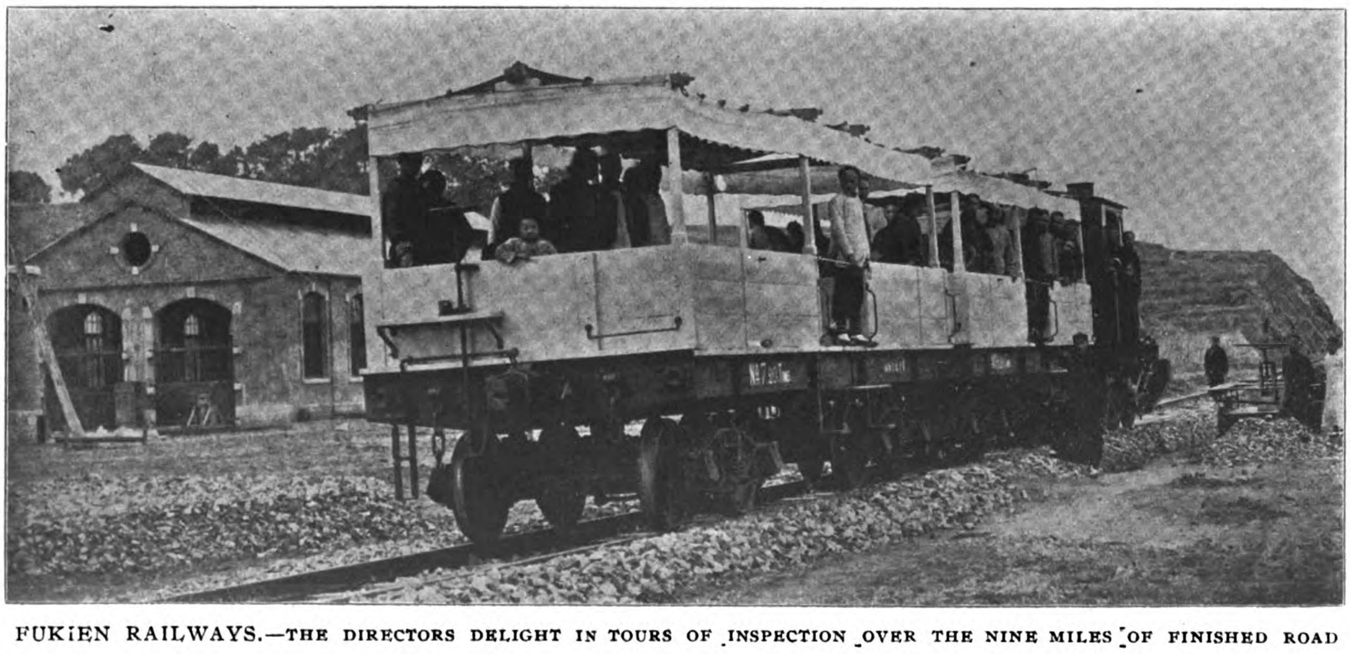
A comfortable depot with warehouse and shops have been constructed and the character of the buildings would indicate that the work throughout will be pursued with a view to permanency. So far, the directors have been conservative in view of the fact that it was an initial Chinese effort to construct railways in that section, and from what can be learned, as soon as the first section is completed and the directors have measured their capacity, greater expedition will mark the balance of the construction work.

The company has contracted with Japanese firms for the ties and sleepers and these are being delivered as required.

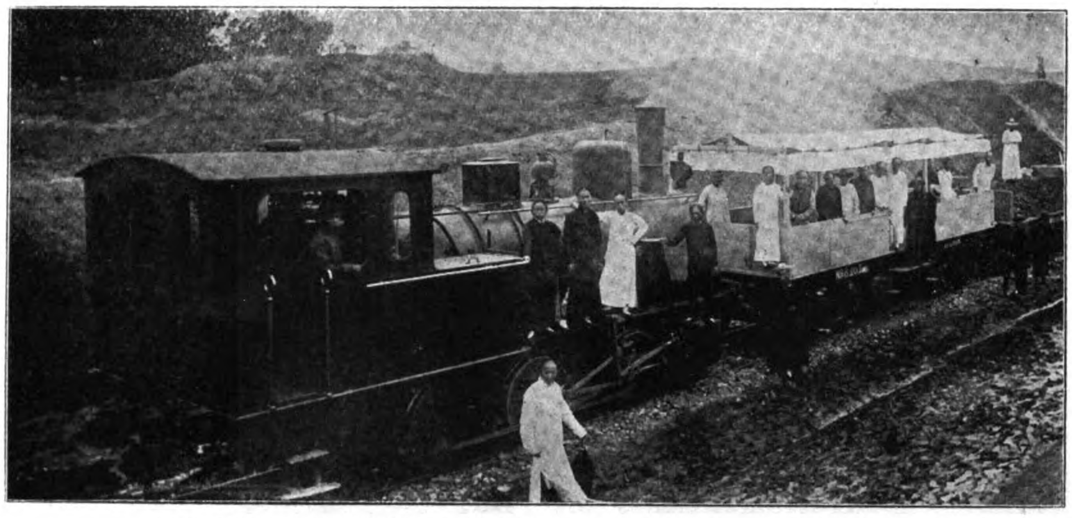
Changchow is a leading manufacturing center and in the vicinity there are a number of coal deposits that await development and the transportation that the railway will offer. Besides coal there is an abundance of timber in that section for which there is a growing demand, and with better transportation facilities to Amoy the lumbering industry would bring a large revenue into the country. In addition to the coal and timber the section referred to is one of the most important sugar growing districts in South Fukien and rice is growing abundantly along the route proposed. Amoy is famous for its fine harbour which is admitted to be the most desirable between Hongkong and North China and is large enough to accommodate a large fleet of merchant vessels without any large expense in improvements.

Previous to the activity of the Amoy Railway Company, a coast railway was proposed, joining Swatow from the south, and Foochow in the north, with Amoy, but this did not receive much support in view of the unproductive character of the country through which the line would pass.

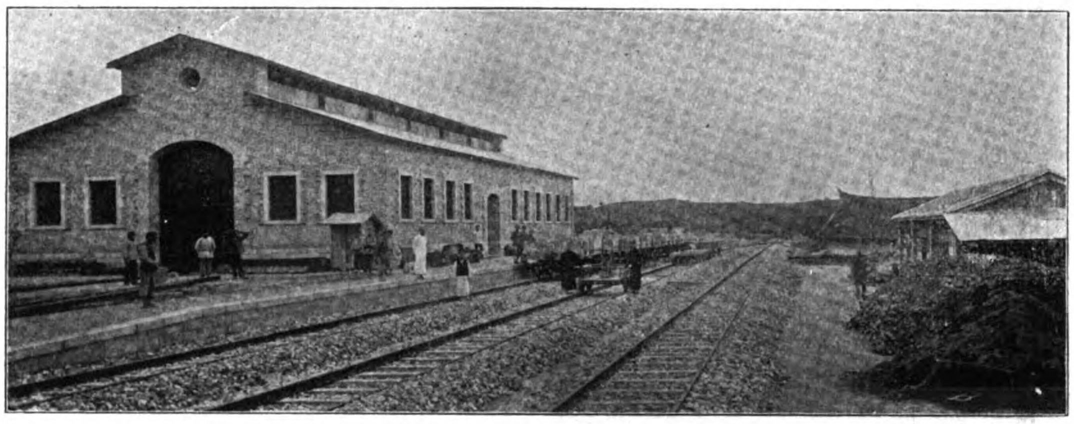
There is reason to believe that with a network of railways throughout the productive areas in Fukien carrying the product of the mine, forest and field, an era of development



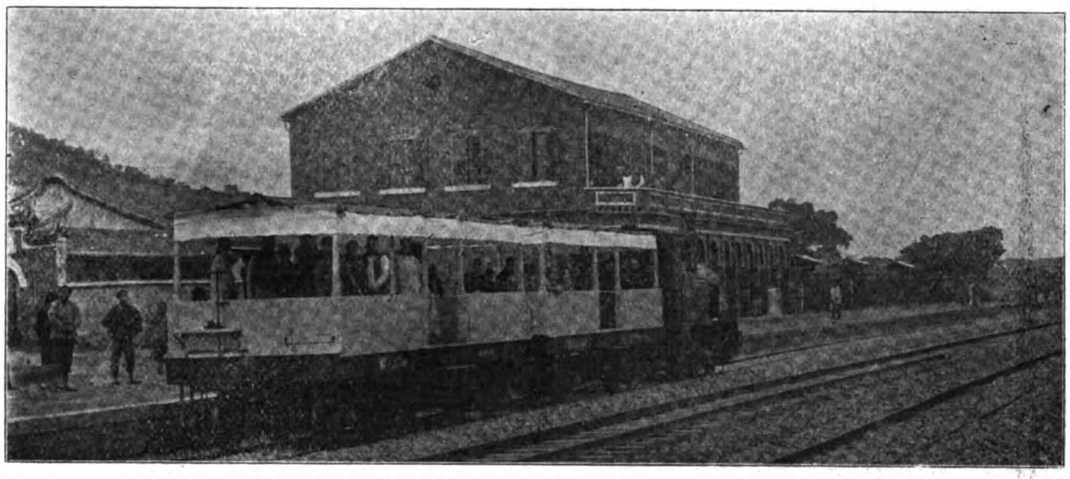
FUKIEN RAILWAYS.—THE DIRECTORS DELIGHT IN TOURS OF INSPECTION OVER THE NINE MILES OF FINISHED ROAD



FUKIEN RAILWAYS.—CONSTRUCTION TRAIN AND DIRECTORS' CAR



FUKIEN RAILWAYS.—CAR HOUSE AT SUNG-SU



FUKIEN RAILWAYS.—"SHOWING OFF" THE ROAD TO A SELECT PARTY

FUKIEN RAILWAYS.—CONCRETE GANG

would follow and Amoy with its splendid harbour would not only become as prosperous as in the days when she controlled the tea trade of Formosa, but her prosperity would be of a permanent character. It is well known that there is an abundance of iron, lead, pottery, clay, salt deposits, etc., and that the agricultural opportunities, especially in the culture of sugar, tea, tobacco, and rice, may not, on account of the inaccessible character of many sections of the country, be estimated at this time.

The completion of this railway to Changchow is the first step in the real development of the country and when other extensions connect such points as Lung Yen Chou, Ting Chou Fu, Hu Too, and Chuan Chou Fu, this important section of China buried within itself will be heard from and Amoy will surely become one of the leading ports of Eastern Asia.

CANTON-AMOY RAILWAY

This railway is still in the air, and has not progressed beyond the paper stage. Sometime ago the Viceroy of the Liang Kwang at Canton issued a proclamation stating that in regard to the Canton-Amoy railway, the first section would be from Chuen Lung Han, outside the Eastern Gate of Canton, to Whampoa a distance of 40 li and then from Whampoa passing Shek Lung, Pok Lo, Kwai Sin, Hoi Luk Fung and other districts to the Chin and Wai Cities and thence to Amoy in Fukien province a distance of about 1,500 li; that in the first section from Canton to Whampoa, he (the Viceroy) had ordered the Pun U Magistrate to make a survey of the track in order to find out whether this track would interfere with the houses and tombs of the people; that land should be purchased and marked off by pegs; that owners of land within the track should deliver their deeds to the company for examination; that the land would be bought from them at reasonable prices, and that they would not be allowed to raise the prices to an exorbitant rate; that if there be any houses, tombs, fruit gardens, or fish ponds in the way of the track, they would have to be removed and compensation would be given for such removal; that property owners who desire to be shareholders of the railway may convert the proceeds of their property into subscriptions thereto and interest would be paid them accordingly; and that those who dare to raise the price of land or give obstruction to the road would be strictly punished.

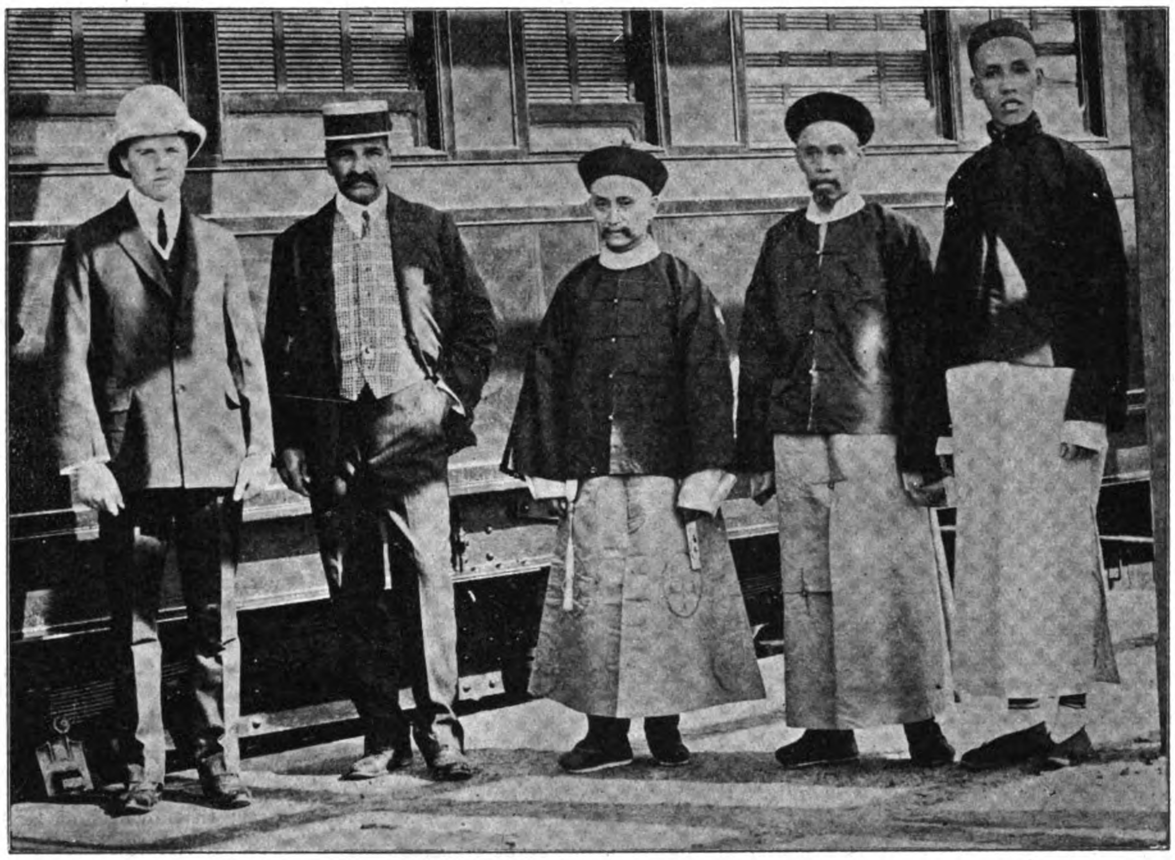
MANUEL EARNSHAW & CO., LTD.

The well known engineering firm of Messrs. Manuel Earnshaw & Co., Manila, has been incorporated with a capital of ₱1,600,000 under the laws of the Philippine Islands and will continue to carry on the business along the same lines as formerly. The officers of the company are: President, Mr. Manuel Earnshaw; First Vice-President, Mr. Tomas Earnshaw; Second Vice-President and Treasurer, Mr. Daniel Earnshaw, Jr.; and Mr. Charles A. Clark, Secretary.

TAO-CHING RAILWAY STATION

THE SHANGHAI-NANKING RAILWAY

*** By A. H. COLLINSON, M. Inst. C. E.**



SHANGHAI-NANKING RAILWAY.—HIS EXCELLENCY TAOTAI CHUNG MUN-YAU, MANAGING DIRECTOR, IN THE CENTER. MR. A. W. U. POPE, GENERAL MANAGER, TO HIS LEFT.

Editorial Note:

We leave the story of this line to be told by its Chief Engineer. There has been so much criticism directed against the extravagant use of the loan funds, that Mr. Collinson's paper will enable readers to arrive at an approximate appreciation of the work carried on under his direction. Mr. Collinson's figures as given herein, however, fall short of the actual amounts expended, for the line to date according to published figures has cost £11,300 per mile. The costs of rolling stock are also subject to revision and in some instances are higher than the figures given herein and are now being determined by investigation of the construction accounts.

It is estimated that, omitting all financial charges, commissions and other items, the actual cost of construction will be £10,600 per mile.

It may be said that the British & Chinese Corporation, in living up to the terms of its agreement to build a line embodying the most approved railway principles consistent with economy in cost, while fully complying with the provision of excellence, has failed to meet the Chinese idea of economy. It may be accepted as a fact, that China's attitude towards all foreign loans and especially British has been materially altered as a result of lessons learned from the Shanghai-Nanking administration, in which sole control of expenditures was under the Foreign Chief Engineer. There are always two sides to any dispute and both parties seem to have well founded grounds for complaint against each other, but pending a final report based on full investigation of the expenditures judgment should be suspended. To the difference of opinion arising from the construction of this line, in which the Chinese hold that extravagance prevailed to increase the size of the loan and commission on purchases, and the persistent refusal of the Corporation's representative to admit their capacity and honesty, can be traced the many set backs to British diplomacy in China, and her final refusal to have any further dealings with the Syndicate, and the substitution of the Hongkong & Shanghai Bank as the representative of British interests in the recent Canton-Hankow-Szechuen Loan preliminaries.

Although the amount of the Loan under the terms of the Agreement with the Corporation was £3,250,000, only £2,900,000 have been issued in two instalments. The attitude of the Chinese Government is that instead of authorizing the balance of the loan, they will supply any further funds needed for the completion and operation of the line from the Imperial Treasury, and to this end have already appropriated Taels 1,604,958 (£221,373).

The road does not pay, despite the strenuous efforts of a most experienced and competent foreign manager, who has already done wonders in the face of almost insurmountable obstacles.

The capital expenditure on the construction of the line up to the end of 1908, was Taels 16,690,508, to which must be added the commissions on purchases amounting to Taels 428,349 or Taels 17,118,850 @7.25 (£2,361,221) or £11,300 per mile (209 miles including sidings). The earnings of the line for 1908 amounted to $ Mex. 1,610,477, of which sum $1,393,591 was from passenger service alone, the freight receipts only amounting to $141,218. The expenditures were $1,092,662, or 67.85% of the receipts. As the interest on the loan amounts to $1,274,134, there is a wide deficit to be faced until the line is able to meet its fixed charges, and this must be paid by the Imperial Government. Under existing conditions, with the collection of provincial likin tax on freight, there is little hope of any great expansion to the goods traffic. If the likin were removed or materially reduced, the line would benefit and be made to pay in a short time. But here the Chinese Government remains firm and refuses to abolish the tax which would make the road profitable and relieve the Imperial Treasury from making good the deficit.

The Viceroy of the Liang Kiang has issued a proclamation making the likin tax on railways lower than on the creeks and canals, but even this does not seem to remedy matters. The Chief Accountant observes in the last Budget that the lack of goods traffic is in the main responsible for the high ratio of expenses to earnings, as also the excessive charges for the purely Chinese Department of the line. These last are naturally resented by the Corporation as an

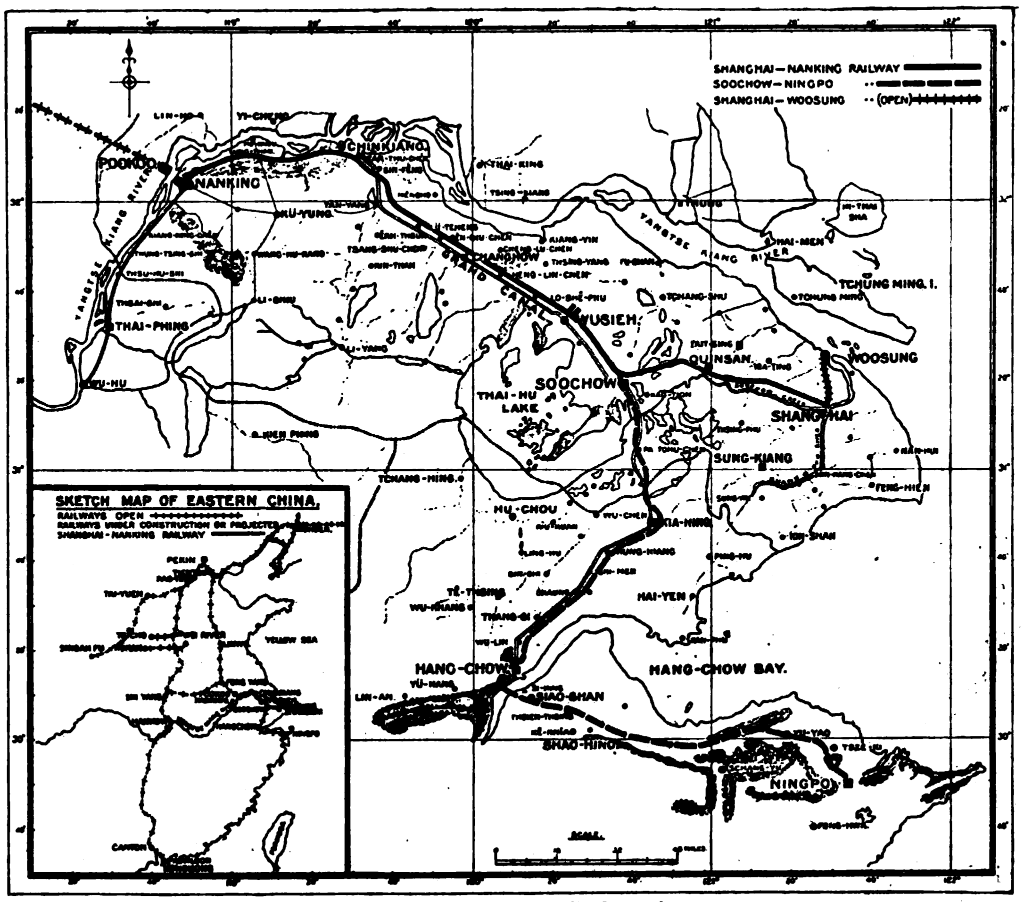
MR. A. W. U. POPE
GENERAL MANAGER OF THE SHANGHAI-NANKING RY.

* Engineer-in-Chief of the Shanghai-Nanking Railway.

unnecessary burden and by the foreign employees as a reflection on their capacity and loyalty. These charges could be materially reduced but as yet the Chinese Government has shown no disposition to decrease the purely Chinese staff. Their duties consist largely of translating all documents and accounts for transmission to Peking and much unnecessary work is entailed.

To the outsider the situation is amusing and instructive. The shoe has been shifted to the other foot, and it pinches hard. The foreign winces from the pain, resents the hidden slight to his integrity and the loss to his pocket by the excessive addition to the working expenses of the line. There is no reflection or insinuation against the honesty or capacity of the foreign officials, but they are simply victims of circumstances over which they have no control, and however strenuous their efforts to make the line pay, they will always be handicapped.

This attitude on the part of China provides food for reflection, to those who can read between the lines. Out of the net profits of the road the British and Chinese Corporation are to receive 20%. If there are no profits they receive nothing. If the Chinese abolish the likin tax or enforce honesty in collecting the higher creek rate, which is a tangible asset to the Treasury, thus diverting the carrying trade to the railway they will contribute to the prosperity of the Corporation by giving up 20% of the profits. The likin tax on goods is assured while boat traffic exists on the creeks and canals. By holding to this source of revenue, they are assured of funds to assist in paying the deficit on the railway, and making the enterprise unprofitable to the Corporation, and hastening the day when they will agree to a surrender of their rights at a fair consideration. As in the case of the Pekin Syndicate, there is a moral to this situation which British interests may well ponder over.



The Shanghai-Nanking Railroad and Its Connections.

REVISED SUMMARY OF COST BY MAIN HEADS AND COST PER MILE WITH PERCENTAGES

Main Head.		Total cost to end of July 1909.	Cost per mile on single line basis.	%
I.—PRELIMINARY EXPENSES. (Survey; Plant)		$ 16,978.12	$ 73.82	.101
II.—LAND		1,837,063.74	7,987.23	10.913
III.—FORMATION. (Earthwork; Double Line; Tunnels; Creeks; Roads)		1,689,343.51	7,344.97	10.036
IV.—BRIDGE WORK. (Major and Minor Bridges; Culverts; Drains)		1,963,544.66	8,537.15	11.664
V.—FENCING. (Boundaries; Signs)		42,614.40	185.28	.253
VI.—ELECTRIC TELEGRAPH		70,898.42	308.25	.421
VII.—TRACK. (Ballast; Permanent Way)		4,876,585.11	21,202.54	28.969
VIII.—STATIONS AND BUILDINGS. (Buildings and Fixtures; Station Machinery; Furniture; Workshops and Stores; Temporary buildings other than quarters)		1,944,654.87	8,455.02	11.552
IX.—PLANT. (Construction Plant; Locomotive and Carriage and Wagon and Engineering Tools and Plant; Steam Launches; Houseboats, etc.; Printing Tools and Plant; Electric Plant; Locomotive and Carriage and Wagon Rolling Stock)		2,667,888.36	11,599.52	15.848
X.—GENERAL CHARGES. (Engineering; Accounts; Stores; Direction; Medical; Locomotive; Traffic; Chinese; Miscellaneous)		1,724,280.01	7,496.87	10.243
Total of Final Construction Heads		$16,833,851.20	$73,190.65	
DEDUCT.				
2-5 cost of Earthwork Soochow Division	$157,056.89			
5-12 cost of Bridge work Soochow Division	323,127.71			
		480,184.60	2,087.76	
		$16,353,666.60	71,102.89	
ADD				
Commission on Purchases in England		227,837.16	990.60	
Commission on Purchases in China		202,238.45	879.30	
Commission General		8,299.45	36.08	
Nanyang College Donations		10,000.00	43.48	
Exchange Account		61,248.60	266.30	
Likin Confiscation Account		3,825.64	16.63	
Land Exchange		9,247.34	40.21	
		$16,876,363.24	$73,375.49	

Mileage including sidings and loops—230 miles of single line.

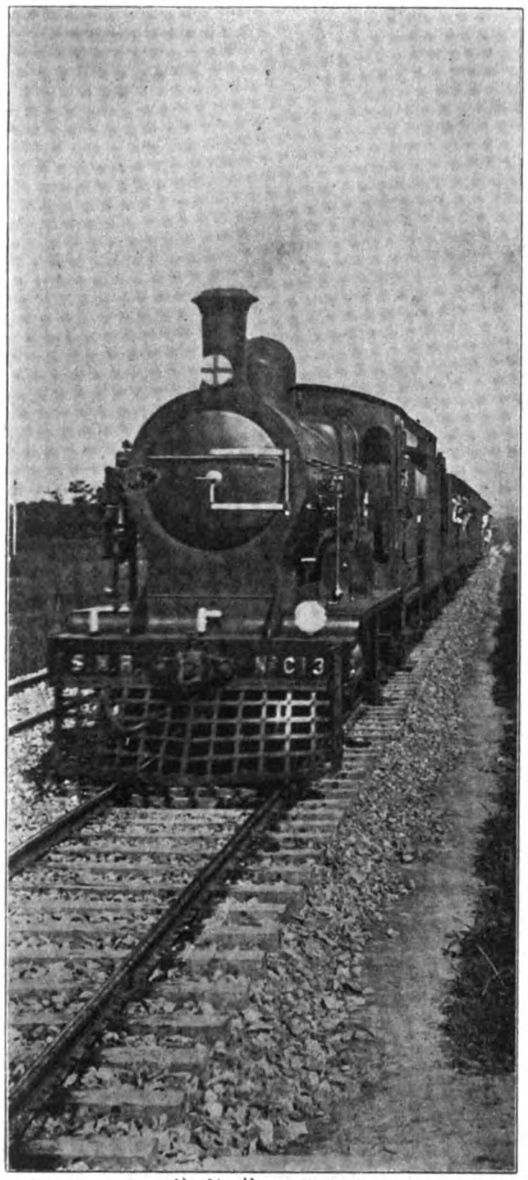
Average cost per mile to end of July 1909, $73,375.49 which at an estimated average rate of $7.2 to a £ gives £10,191 per mile open

The preliminary agreement for the acquisition of a loan for the construction of the SHANGHAI-NANKING RAILWAY was signed on the 13th May, 1898, at Shanghai between the Director General of the Chinese Imperial Railway Administration, Sheng Hsuan Hwai, acting under instructions from the Tsungli Yamen, and the British Firm of Jardine Matheson & Company, for themselves and on behalf of the Hongkong & Shanghai Banking Corporation, representing as Joint Agents a British Syndicate. On the 12th day of December, 1902, an Imperial Decree was issued by the Throne and on the 9th day of July, 1904, a final agreement between Sheng Kung-Pao, Director General of the Imperial Chinese Railway Administration, and the British & Chinese Corporation, Ltd., was signed at Shanghai by Sheng Kung-Pao, the Director General of the Imperial Chinese Railway Administration, acting under authority of an Imperial Decree, of the one part, and Messrs. Jardine, Matheson & Co., and the Hongkong & Shanghai Banking Corporation, representing as Joint Agents the British & Chinese Corporation, of the other part.

The final agreement provided for the issue of a sterling loan for an amount not exceeding £3,250,000 secured by Imperial Chinese Government Bonds with the railway as first mortgage security therefor. The price agreed upon for the loan was 90 per cent of the nominal value of the bonds which bear interest at the rate of five per cent per annum on their nominal value payable half yearly.

The duration of the loan is fixed at fifty years commencing from the date of the ratification of the agreement, but under certain conditions the agreement provides for the redemption of the loan after 12½ years and at par after 25 years.

The amount of the loan was based on the preliminary surveys and estimates which were prepared by the consulting engineers, Messrs. Sir John Wolfe Barry, the late Gabriel James Morrison, and A. J. Barry, M.Inst.C.E., and included provision for payment of interest out of capital during construction, Tls. 1,000,000 the agreed purchase price of the existing Shanghai-Woosung line, the sum of £250,000 for the purchase of land by the Chinese Administration for a double line of railway for the whole distance, and for the construction and equipment as economically as possible in accordance with the best modern system of the line from Shanghai to Nanking.



S. N. R.—TRAIN

In July, 1903, a staff of engineers was engaged in England with the author as Engineer-in-Chief, and work on the permanent survey and location was commenced as soon as the numerous difficulties inseparable with a new undertaking of this nature had been overcome.

It was decided that in the first instance work only on the section from Shanghai to Wusieh should be commenced in addition to some of the heavier work on the Chinkiang-Nanking Section, including the tunnel and deep cuttings in the vicinity. The permanent surveys and estimates were completed during the summer of 1904 and approved by the Director General, and construction work was commenced in the following autumn, considerable delays were experienced in the initial stages however, particularly in land acquisition, matters in this respect improved in the spring of 1905 when on April 25th the ceremony of cutting the first sod was performed by H. E. Sheng Kung-Pao at Shanghai, and the first section of the railway was opened to traffic to Naziang on November 20th of the same year, and in the following July to Soochow and Wusieh, to Changchow on May 15th, 1907, to Chinkiang on October 15th, 1907, and on March 28th, 1908, the first train ran from Shanghai to Nanking in 5 hours and 37 minutes inclusive of all stops.

Alignment.—The alignment generally follows the line laid down on the preliminary survey by the late Mr. James Morrison, M.Inst.C.E., excepting that at Quinsan the writer decided a better route could be got by passing the city on the south instead of on the north; a considerable improvement in alignment was also made between Lungtan and Nanking, the route being shortened with a better line and easier gradients.

During the preliminary examination of the country between Shanghai and Nanking, the writer came to the conclusion that in locating the railway any attempt to avoid all interference with the almost countless graves and houses would, besides ending in failure, have involved a succession of curves and kinks absolutely ruining the general alignment together with all ultimate prospects of fast running and economical operation, he therefore recommended the adoption of the longest straights possible as likely to be in the end the most satisfactory, both as regards directness and therefore shortness of route, first cost of construction, and future cost of maintenance and operation, a policy which was fully endorsed by the Chinese Authorities and was worked up to.

The line does not interfere in any way with any ancestral halls, tombs, or monuments, some slight deviations being made to avoid disturbances of this nature.

The total length of the railway on centre line from Shanghai to Nanking is 193.02 miles, the section to Soochow for a distance of 53 miles 1,564 feet has been constructed with works for a double line, the extra cost over single line works out in the proportions of five-twelfths (5-12ths) for the bridgework, and two-fifths (2-5ths) for the earthworks.

The following tables give particulars of the gradients and curves adopted, from which it will be seen that the ruling gradient is 1 in 200, but only 5.64 miles or 2.9 per cent of this, and the sharpest curve 3°.

The gradients in general are easy, there being 128.34 miles of flatter than 1 in 1,000 or level line.

The aggregate length of the curves between Shanghai and Nanking being 19.8 miles, the sharpest 3°, but only two of these totalling 4,180 feet in length.

The ratio of curve to total length of line equals 9.75%.

GRADIENT ABSTRACT

'Mile 0 to 193.

Inclination.	No.	Miles length	Percentage of total length
1 in 200 or 0.5%	6	5.64	2.9
1 in 250 or 0.4%	8	3.30	1.7
1 in 300 or 0.33%	19	13.50	7.0
1 in 350 or 0.28%	1	0.20	0.1
1 in 400 or 0.25%	6	5.91	3.0
1 in 500 or 0.20%	57	22.35	11.6
1 in 600 or 0.16%	1	0.45	0.2
1 in 700 or 0.14%	2	1.57	0 8
1 in 1,000 or 0 10%	23	11.74	6.1
Flatter than 1 in 1,000, including level	..	128.34	66.6
	123	193	100.00

A. H. COLLINSON, M. I. C. E.

CHIEF ENGINEER OF THE SHANGHAI-NANKING RAILWAY DURING CONSTRUCTION

CURVE ABSTRACT

Mile 0 to 193

Angle of Curvature.			No.	Feet Length.
0°-30′	Radius	=11,459 feet	2	700
1°- 0′	,,	= 5,729.6 ,,	37	57,192
1°-30′	,,	= 3,819.8 ,,	2	7,530
1°-40′	,,	= 3,437.9 ,,	1	2,420
1°-50′	,,	= 3,125.4 ,,	2	3,630
2°- 0′	,,	= 2,864.9 ,,	11	19,574
2°-50′	,,	= 2,022.4 ,,	2	4,270
3°- 0′	,,	= 1,910.1 ,,	2	4,180
			59	104,496
		Miles	19.8	

Ratio of curve to total length of line =9.75%.

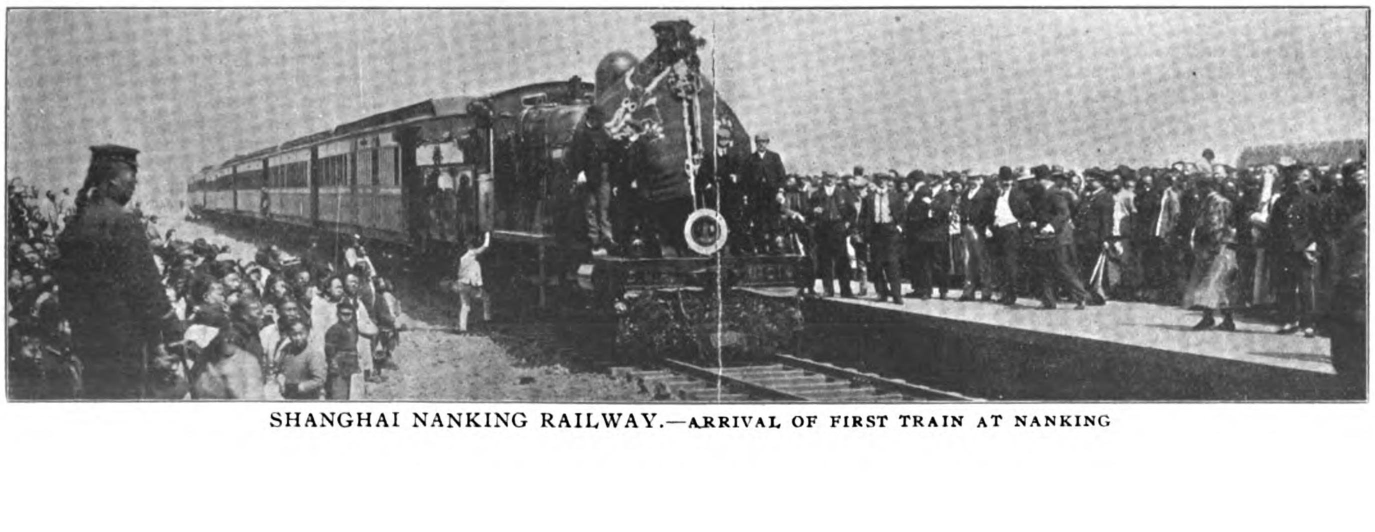
All curves sharper than 1° curvature (radius 5,730 feet) are entered by transition curves 200 feet in length in all cases, an easy method, due to the late Mr. Gabriel James Morrison, was adopted for setting out these curves, the formula is too lengthy to give in detail in this paper, but the method is fully described in the more modern treatises on surveying, and the author also thinks in the minutes of the Institution of Civil Engineers.

The country traversed by the railway between Shanghai and Nanking is well known to the members of this society and does not need description at length.

From Shanghai to Tanyang the line crosses the highly cultivated alluvial plain of the Yangtze Valley, intersected with a network of canals and creeks, the following principal cities and towns being situated on the route:

Naziang, Quinsan, Soochow, Wusieh, Changchow and Tanyang; after leaving the latter city the country changes, the line traverses an undulating and rising country until it reaches a ridge or watershed at mile 144, from this ridge it descends on easy gradients to Chinkiang City along an undulating country necessitating heavy cuttings and a tunnel through the Fort Hill.

From Chinkiang the alignment runs at the foot of the hills as far as Lungtan and so avoids the outer country subject to periodical inundations. From Lungtan the route runs through



SHANGHAI NANKING RAILWAY.—ARRIVAL OF FIRST TRAIN AT NANKING

hilly country to within 1½ miles of Nanking, involving very heavy earthworks both in cutting and embankment, the summit of the railway is reached at mile 186, the rail level being 91.28 feet above the I.M.C. low water mark at Shanghai.

The terminus at Nanking is on embankment, the only possible site for the station yard being on low swampy ground on the south bank of the Yangtze and subject to annual inundation which necessitated heavy earthwork charges, the area required for the yard having to be raised an average of 15 feet.

Earthworks.—The type width of embankment for double line at formation level is 30 feet, and for single line bank 17 feet 6 ins., the slopes being 1½ to 1, single line cuttings are in general 25 feet 6 ins., and double line 38 feet in width at formation level. The usual slope of the cuttings is 1½ to 1, but in many instances this had to be increased to 2 to 1 and in one deep cutting on the Chinkiang Section a slope of 3 to 1 was found necessary.

From Shanghai to Tanyang nearly all the embankments were made from side cutting, an exception being the bank across the Hsu Shir Kwan marsh at mile 60, which had to be topped entirely by light railway and wheelbarrows, the seat of the embankment being continually under water or waterlogged and borrowpits alongside impracticable, an allowance for settlement of 25% in height was made in this latter work, which proved to be barely sufficient.

Between Tanyang and Chinkiang portable light railway was largely used, light rails and steel all round tip wagons holding one cubic yard were extensively employed in tipping the excavation from cutting to embankment, but it was found that with a lead exceeding 1,000 feet it was more economical to tip the cutting to spoil and to make the bank from borrowpit. At the Nanking terminus a metre gauge locomotive with a set of twenty-five 4 cubic yard trucks were advantageously employed in bringing earth from a hill 1½ miles distant to fill the station yard, this plant being supplemented by 5 miles of light railway, wheelbarrow and basket transport working from nearer borrowpits.

Cost of Earthwork.—Shanghai Division.—The quantity of earth required for filling at Woosung workshop yard, Shanghai station and Markham Road goods yards, which chiefly had to be led by locomotive from long distances, dumped and recarried by baskets, amounted to over 100,000 cubic fongs at a total expenditure with all charges of $106,216.00.

From mile 1 to mile 144 inclusive.

The following are the actual figures:—

	Cubic fongs.
In Cuttings and Banks	1,175,831
Station Yards	118,551
Creek Divisions	83,501
Roads	29,878
	1,407,761
	=5,213,929.63 cubic yards.

Of this

Fongs 447,939 in 5'.0 bank or under	=36%
Fongs 371,412 in 10'.0 bank or under	=31%
Fongs 356,480 in 10' to 30' bank or under	=33%
	100%

29,878 fongs of brick rubble were boated for use in topping high embankments.

Cost.

5'.0 bank or under average	$0.35 per cubic fong.
10'.0 bank or under average	$0.376 per cubic fong.
Over 10'.0 bank under average	$0.51 per cubic fong.
Pumping borrowpits	3% of total cost.
Service roads and bridge	5½% of total cost.

The above rates include the cost of all plant, such as light railway, which was provided when required by the Railway. From mile 144 to Nanking, mile 193.

The quantities of earthwork were as follows:—

	Cubic fongs.
Embankment	965,000
Cuttings	285,000
Total	1,250,000

Total cost $760,000=$15,200 per mile, or 60 cents per cubic fong average for all classes of heavy earthwork, including embankments from 10 to 30 feet in height and cuttings from 15 to 60 feet deep. Rates include cost of plant, locomotive and all contingent charges.

The work throughout was let by contract to native contractors at schedule rates, payments being made on measurements from excavation in cutting or borrowpit with the usual allowances for extra lead exceeding an average of 200 feet.

The slopes of most of the deep cuttings have been turfed to prevent erosion and experiments have been made in sowing many of the slopes with grass seed with a similar object.

Very little trouble has been caused by slips. In the few cases where these have occurred the slopes have been drained with stone rubble counterforts connected with arches of the same material carefully handpacked on the face. The author considers this form of drainage far preferable to the more common V-shaped drainage generally adopted in railway practice, the arches not only serving as drains but also to support the loose material. He has known this method of arched counterfort drainage to succeed in stopping slips in heavy clay when all other means had failed.

Bridges and Culverts.—The bridgework from mile 1 to Wusieh, at mile 80, was very considerable for the reason that although there are no bridges of larger span than 60 feet, 164 navigable canals and creeks had to be crossed, an average of just over two bridges per mile. From mile 80 to mile 144 there are rather more than 1 a mile, the work, however, being of a heavier nature. From mile 144 to Nanking there are 69 bridges, mostly minor openings, as owing to the nature of the country there are much fewer defined main creeks.

The total number of bridges constructed from Shanghai to Nanking numbers 303, having a total waterway of 5,857 lineal feet. From mile 1 to 144 there are 20 major bridges and 313 minor, while from mile 144 to Nanking there are 5 major bridges and 64 minor.

Culverts.—Between mile 1 and Nanking there are 405 culverts having a total area of 1,992 sq. feet, particulars of these have also been given above.

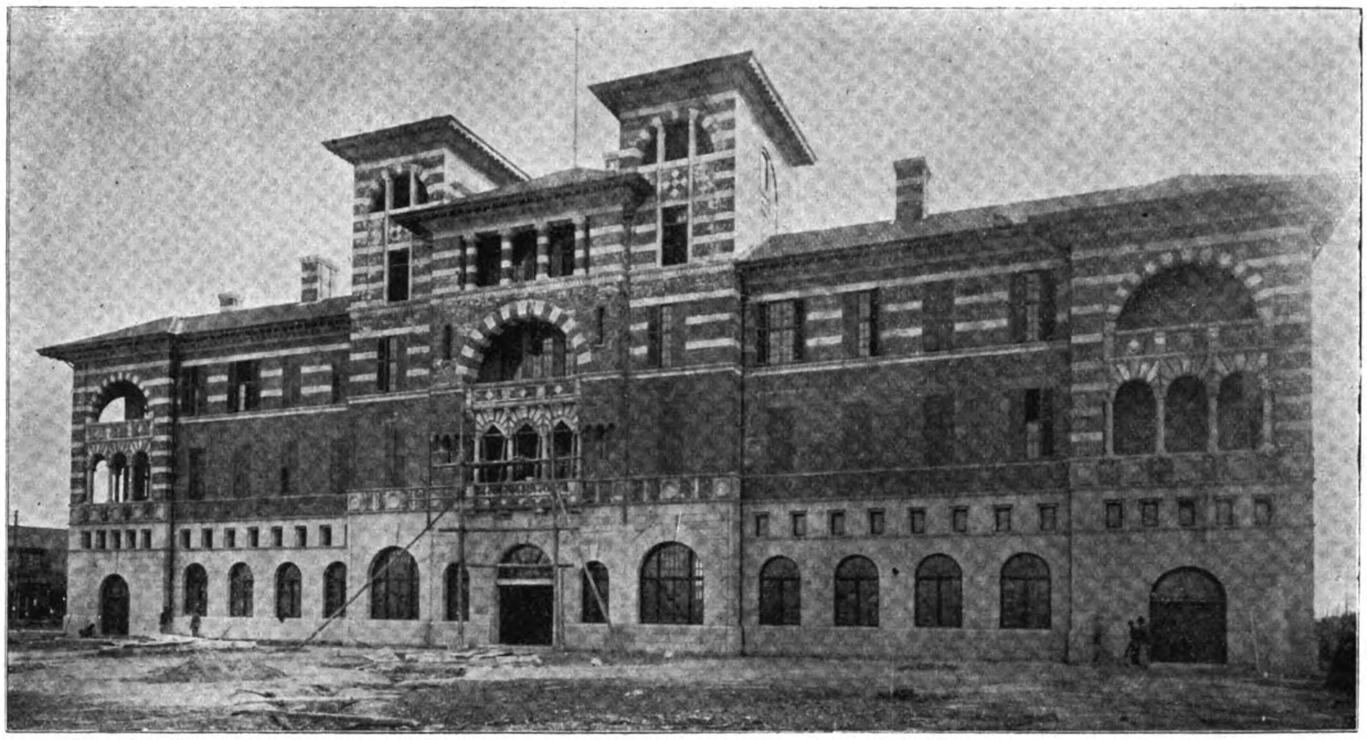
Between Shanghai and Soochow, with few exceptions, the abutments and piers of the bridges, which have been built for a double line, are constructed entirely of brickwork in cement on cement concrete foundations.

From Soochow to mile 144 the majority of bridges are constructed of coursed granite set in cement on concrete foundations, while from mile 144 to Nanking the larger part of the substructure consisted of cement concrete.

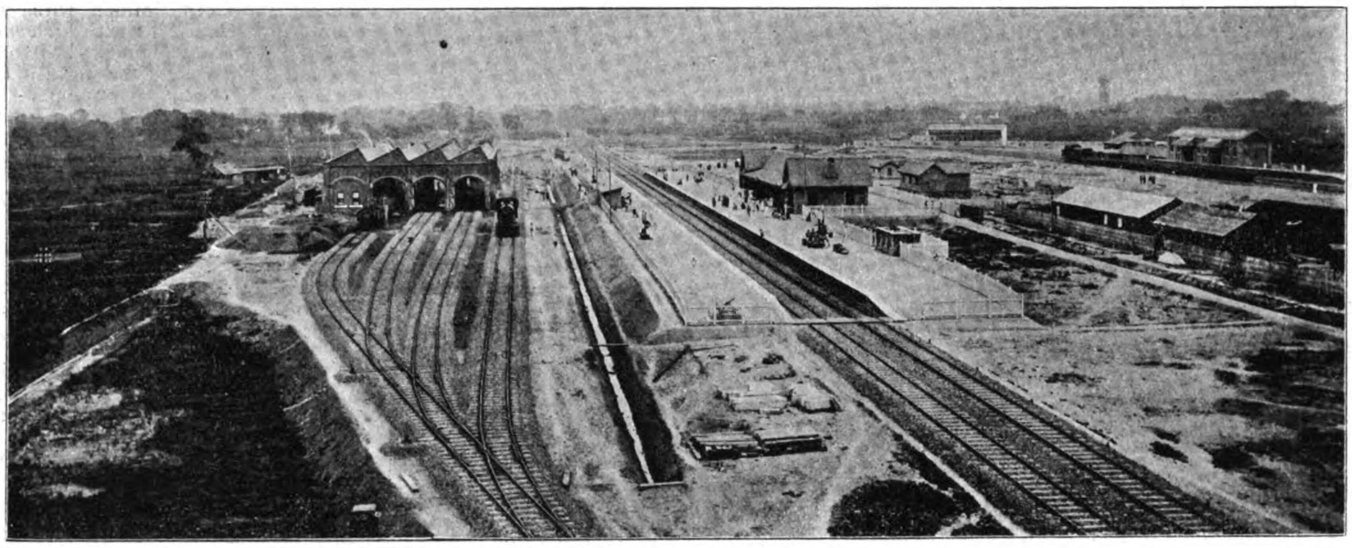
Three types of bridges were generally adopted, abutments with splay wing walls, abutments with straight return wing walls, and pier abutments.

Wherever possible, where headway would permit, arched superstructure was adopted (diagram 7 illustrates a type) but in the majority of cases, more particularly between Shanghai and Sinfeng, mile 138, steel girder superstructure had to be used.

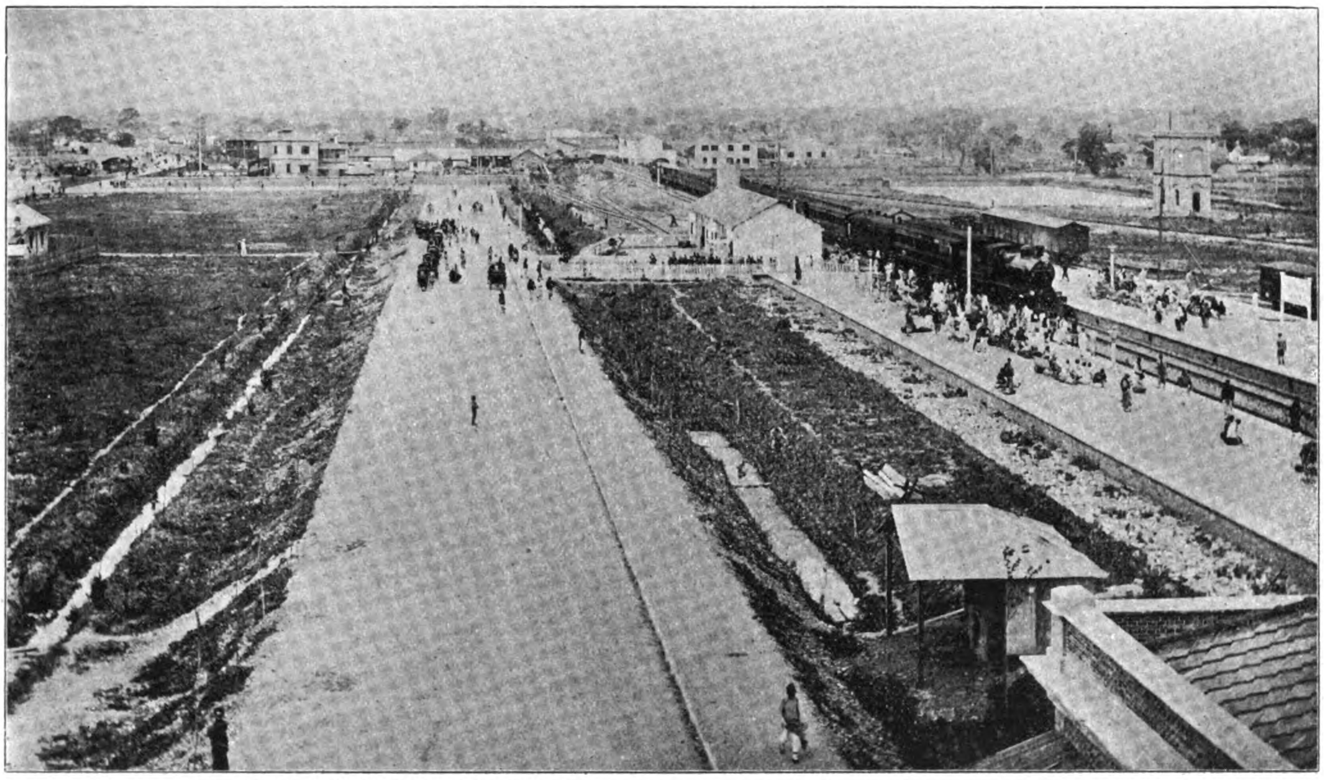
The majority of creeks crossed being navigable, sufficient headway had to be given for boats to pass with their masts down. The headway was invariably fixed from that of the lowest existing bridge on the creek.



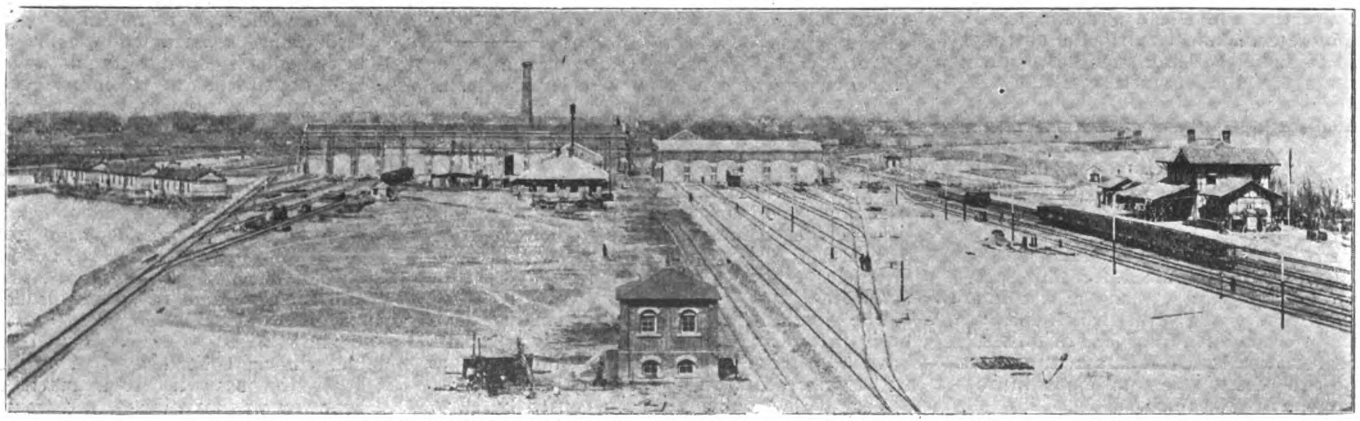
SHANGHAI-NANKING RAILWAY.—THE NEW STATION AND ADMINISTRATION BUILDING AT SHANGHAI



SHANGHAI-NANKING RAILWAY.—CHANGCHOW STATION AND YARD



SHANGHAI-NANKING RAILWAY.—SOOCHOW STATION AND MACADAM ROAD TO CITY

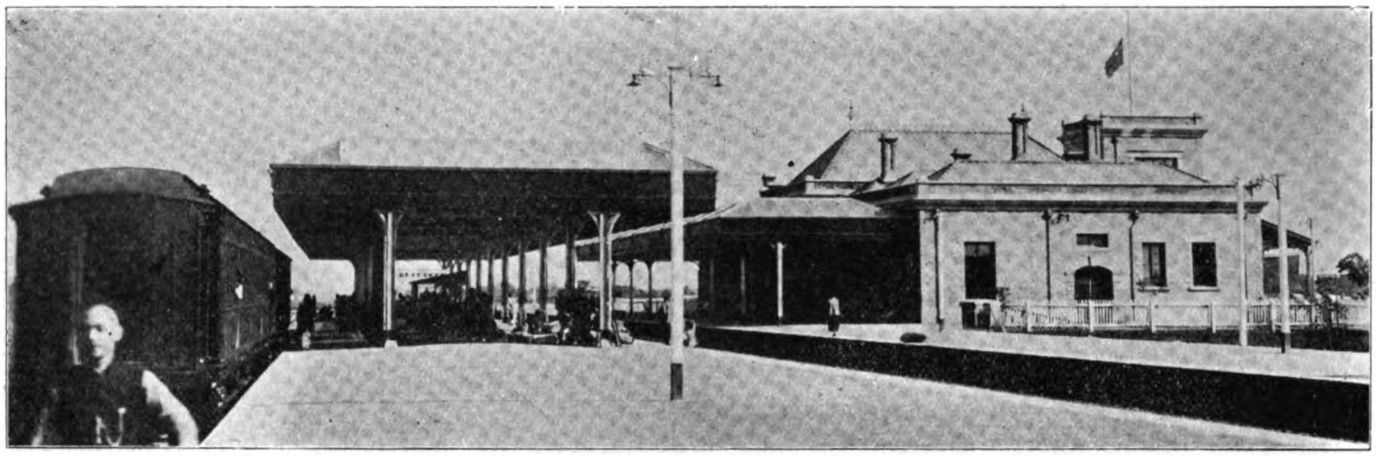


SHANGHAI-NANKING RAILWAY.—THE SHOPS AT WOOSUNG

It is impossible in this paper to refer in detail to the difficulties encountered in the construction of many of these bridges. The foundations, hardly without exception, were bad, as was to be expected in crossing an alluvial plain, necessitating heavy charges for cofferdam, timbering and pumping work. Many of the foundations had to be piled, and in the smaller openings concrete inverts and apron walls were found necessary.

Two typical cofferdams are illustrated.

The chief difference between this cofferdam and others lies in the fact that the inner line of piles is packed in the puddle and not inside the foundation. Two rows of piles were driven into the bed of the creek round the top of the inside row, at water-level was bolted a 12′×6′ waling leaving a rectangle inside of 49′ 9″×18′ 3″. Two sets of framing, consisting of 12″×6″ timbers were bolted and strapped together and floated in the water inside the cofferdam. This framing was constructed so as to leave 3″ clearance all round to allow sheet piling to be driven between it and



SHANGHAI-NANKING RAILWAY.—SOOCHOW STATION

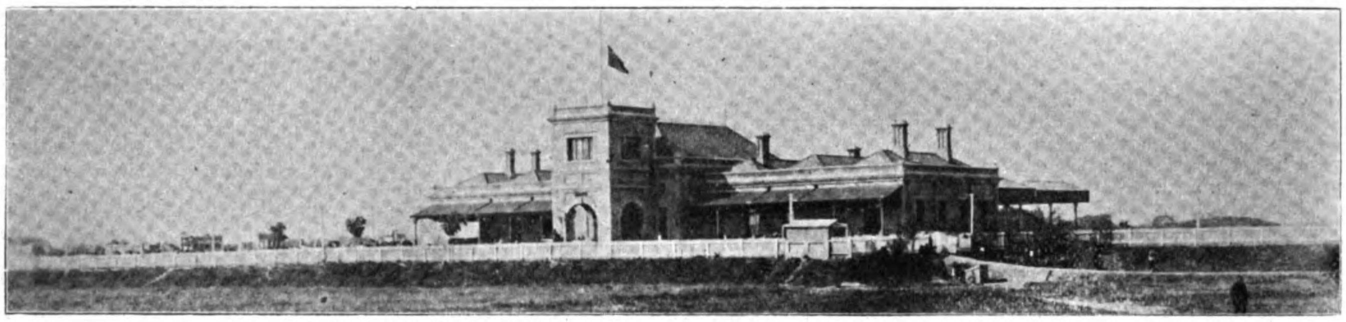
the waling. The two frames were exactly similar, the top one floating in the water was bolted through the waling and piles, leaving 3'' clearance for the sheet piling. The lowest frame was weighted and sunk as far as possible without the aid of a diving costume and kept down by distance pieces from the top frame. Sheet piling was then driven, the outside row of piling was kept from bulging outwards by a waling sunk with stirrups round two piles, being kept down by a wedge driven between the waling, the stirrup and the pile.

This form of cofferdam proved most economical in operation, one, I am informed by Mr. A. C. Clear, who introduced the type on the work, having been drawn and used in 8 or 9 different foundations.

The other cofferdam needs no description, being of the usual type excepting that the sheet piling is birdsmouthed, the author having introduced this joint in this part of the country.

The bridge No. 55 at mile 30 is the first of any importance where the railway crosses the Hsin Yong Kong. The double line bridge consists of four through girder spans of 40 ft. with two 20 ft. arches on either side. The foundations for the arches were carried out in the following manner:—

An embankment was tipped out over the area of the six pier foundations and timber trenches were sunk through this embankment, 1'' poling boards with walings at 4 ft. centres being used, and the concrete spread over a large area to obviate the use of piles put in. Three cofferdams were constructed for carrying out the central pier foundations, the maximum head of water being 15 ft. The rest of the work was carried out in brickwork in cement with concrete facings and copyings. The arches were turned in a mixture of lime and cement mortar, the backing being of cement concrete, cement rendered and tarred. The total cost of this bridge was $116,451.34. Of this sum the foundations, including cofferdams, steam pumps and plant, cost $50,194.75. 1,249 barrels of cement were used in the work.



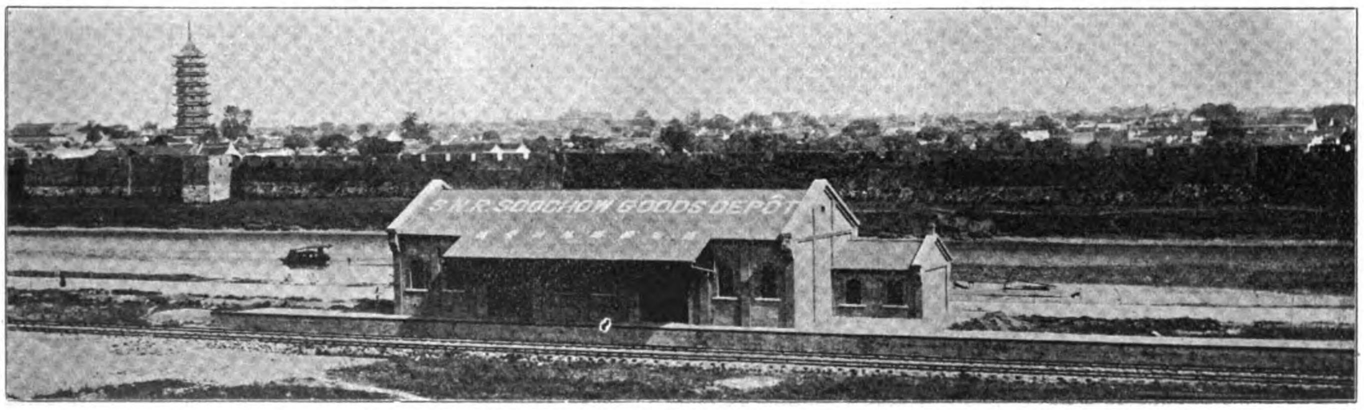
SHANGHAI-NANKING RAILWAY.—SOOCHOW STATION

The next major bridge, No. 68, over the Grand Canal, west of Quinsan, consists of three through girder spans of 60 ft. The foundations for the piers were put down in cofferdams, in cement concrete, the abutment piers being built in the dry with ordinary timbering. The substructure is composed of coursed granite masonry in cement with granite ashlar pilaster caps and string courses. The depth from under side of girder to the Canal bed is 26 ft. leaving a clear headway at high water level of 15 ft., the central piers have circular cut waters carried up above high water level. The main piers are 35 ft.×6 ft. 6 ins.×26 ft. from top of concrete. The steel girders are of the through type with one centre girder and two face girders, cross girders and longitudinal rail bearers. The erection was carried out entirely by Chinese labor under European supervision, the girders being rivetted up on the embankment and launched into position on timber baulks supported on temporary sleeper cribs. The cost of this bridge was $67,419.74.

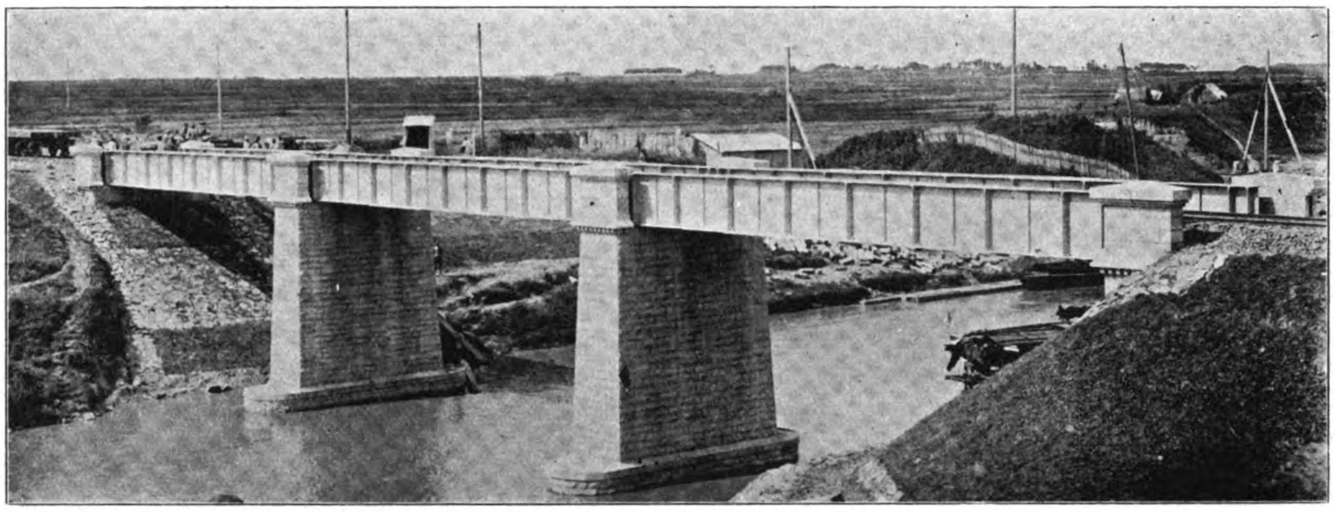
Several of the bridges in the neighbourhood of Soochow are of interest, more particularly Nos. 105, 108, 109 and 110, the latter two being the only skew girder bridges constructed on the railway, the cost of these amounted respectively to $59,281.83, $50,469.51, $30,506.53 and $33,283.17.

Another major bridge is No. 231, over the Grand Canal, excepting that the masonry piers above cut water level are battered on all faces, and the bridge is for a single line of railway. The height from underside of girder to creek bed is 38 ft. with a clear headway above high water line of 25 ft., the height of pier from top of concrete to girder level being 35 ft., cost $43,359.49.

A reinforced cement concrete skew arch road bridge was erected over the canal at Soochow to carry the station road approach. The abutments were constructed with the granite from the old foot bridge, near the site of the bridge, the spandrils and arch being built in cement concrete reinforced with corrugated steel rods interlaced with wire. The total cost of this bridge was $12,145.09, including the pulling



SHANGHAI-NANKING RAILWAY.—SOOCHOW GOODS DEPOT



SHANGHAI-NANKING RAILWAY.—TWO PIER GIRDER BRIDGE OVER CANAL

down of the old bridge, cofferdams for the new abutments, dredging, etc. The proportions of the concrete used were as follows:

Foundations............	1.	3.	7.
Backing to abutments and spandrils........	1.	3.	6.
Arch ring..............	1.	3.	4.

The cost per fong of these proportions work out at $38.84, total cost per fong in superstructure, including all material, shuttering, cleaning down, etc., corrugated steel and iron, work out at $56.77 per fong.

Materials.—The cement used was supplied by the Green Island Cement Co.; the cost, including freight and insurance, landing and transport charges to the site of the work, averaged $5.00 (mex.) per barrel.

Bricks were obtained chiefly from the kilns in the Kashing district; stone for concrete, Soochow granite; sand from mile 1 to Chinkiang had to be obtained from the Chusan Islands,—Yellow Ningpo sand—at the Nanking end of the work sand from the Poyang Lake was used.

The following rates for work represent a fair average:—

	Per fong.
Cement concrete, inclusive of cement, including all other materials and labor	$22.00
Brickwork in cement including cost of cement	32.00
Coursed granite rubble masonry in cement	42.00
	Per cub. ft.
Granite Ashlar in copings and bedstones set	2.75

Altogether tons 1,885, 5 cwts., 0 qrs., 14 lbs. of built up steel girders have been erected, the f.o.b. prices in England varying from in September, 1904, £9.6.6. per ton, August, 1906, £10.12.6, and January, 1907, £11.10.0, the increase representing a corresponding rise in steel during the period.

The total cost of the bridges per mile works out as follows:

From mile 1 to 56..............	$19,332.21
From mile 56 to 80..............	16,894,11
From mile 80 to 144............	10,385.81
From mile 144 to Nanking.......	10,900.00

Fencing.—Following the usual custom in China, the main line is unfenced, boundary stones denoting the limits of land acquired, and fencing has been erected only at important stations and yards. The workshop yard at Woosung is enclosed with unclimbable corrugated iron fencing 6 ft. high with wrought iron posts and struts, a similar type being used at the locomotive yard, Shanghai, and the Markham Road storeyards. The Shanghai station approach roads are fenced with unclimbable wrought iron fencing 6 ft. high, while wire fencing has been used with wrought iron posts and straining pillars in conjunction with ditching to protect the railway property. Open pale and arris fencing 5 ft. high has been used for Station platforms, timber from cofferdams, etc., having been economically utilized. The cost per mile including boundary stones and all signs works out at $169 per mile.

Electric Telegraph.—By mutual agreement with the Imperial Chinese Telegraph Administration the main line of posts and wires to Nanking was constructed by the latter administration, the railway paying a proportionate cost of the total according to the number of wires used. All instruments and connections were supplied and fitted by the railway. The instruments used are Open Circuit Morse Inkwriters, P. O. Galvanometers, 4-line lightning conductors and 4-line commutators, the batteries being Leclanche. The cost per mile inclusive equals $297 per mile.

Track.—The permanent way consists of 85 lb. flat footed steel rails 36 foot long, 5¼ inches deep, flang 4¾ inches wide, head 2⅝ inches wide, web 9-16 inches thick, steel fishplates 1 foot, 10 inches long, with four bolt holes at 6′ centres, steel fishbolts 1″ diameter 5¼″ over all screwed 2½ special hexagonal nuts 1½″ over squares by 1¼″ long with washer stamped on. Wrought iron spikes Chisel pointed 1¼″, 5 13-16″ over all ¾″ square. The main line sleepers are of Jarrah 9′ 0″ × 10″ × 5″ spaced 14 to a 36 foot rail or 2,060 per mile. Siding sleepers of the same wood 8′ 0″ × 9″ × 5″ spaced at 3′ 0″ centres of 1,760 per mile.

The line is ballasted throughout with bottom ballast consisting of large stones about 12″ × 6″ × 8″ deep, hand packed, the top ballast broken stone to pass a 2″ ring; from mile 1 to 144 the ballast is almost entirely Soochow granite brought by boat from the Kinshan and other quarries in the hills the Tai Hu Lake; from mile 144 to Nanking the ballas was quarried from the hills in the vicinity of the Railway and transported by wheelbarrow or on donkeys.

The f. o. b. price of rails in England varied from £4 in October, 1904, (100 miles of rails were purchased at this price) to £6.7.6 in March 1906, (100 miles purchased) and £6.12.6 in May 1907, or 63% higher than the prices ruling in 1904 when both the agents and the author strongly recommended that the whole quantity required for the railway should be purchased

The sleepers were purchased at rates c. f. i, varying from 6s. 1½d. for the smaller size to 7s. 1½d. s.d. for the larger. The life of a Jarrah sleeper is unknown in this country, but in similar climates 20 to 25 years or even longer is reckoned upon and the writer sees no reason to doubt why with equal climatic conditions and good ballast this period may not be looked forward to here, so that their adoption, though more costly in the first instance than Japanese with a life of 3 to 5 years should in the end prove a most profitable investment.

All sleepers were machine drilled for spikes before being sent out of the store yard, the machine being belt driven by a 12 H. P. portable steam engine.

The cost of the ballast varied considerably in proportion to the transport, the following are fair average rates:—

Mile 0 to 56. $1.40 per ton placed on bank (=$5.60 per cub. fong)

Mile 56 to 80. Bottom Ballast delivered in stacks about 3 miles apart $3.92 per cub. fong, Top Ballast $4.32

Mile 80 to 116. Bottom Ballast $4.20 per cub fong, Top $4.60 per cub. fong delivered at Depots; placing on bank $1.50 per fong.

Mile 116 to 134. Ballast stacked continuously in cess. Bottom $5.60, top $6.00.

Mile 134 to 137. Bottom Ballast on bank to template $6.15 per fong, top 4 fongs per 100 on formation, remainder on cess, $6.65 per fong.

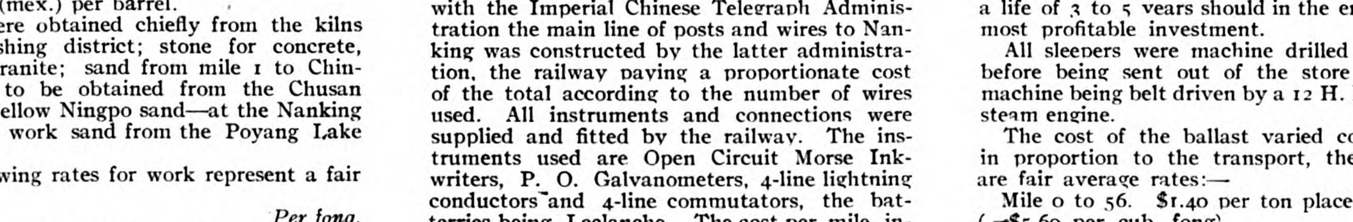
Mile 137 to 141. Bottom $6.20 per fong, on bank to template, Decauville supplied. Top in Depot $5.30 per fong.

Mile 141 to 144. Bottom on bank to template $7.00, Top along cess $7.00.

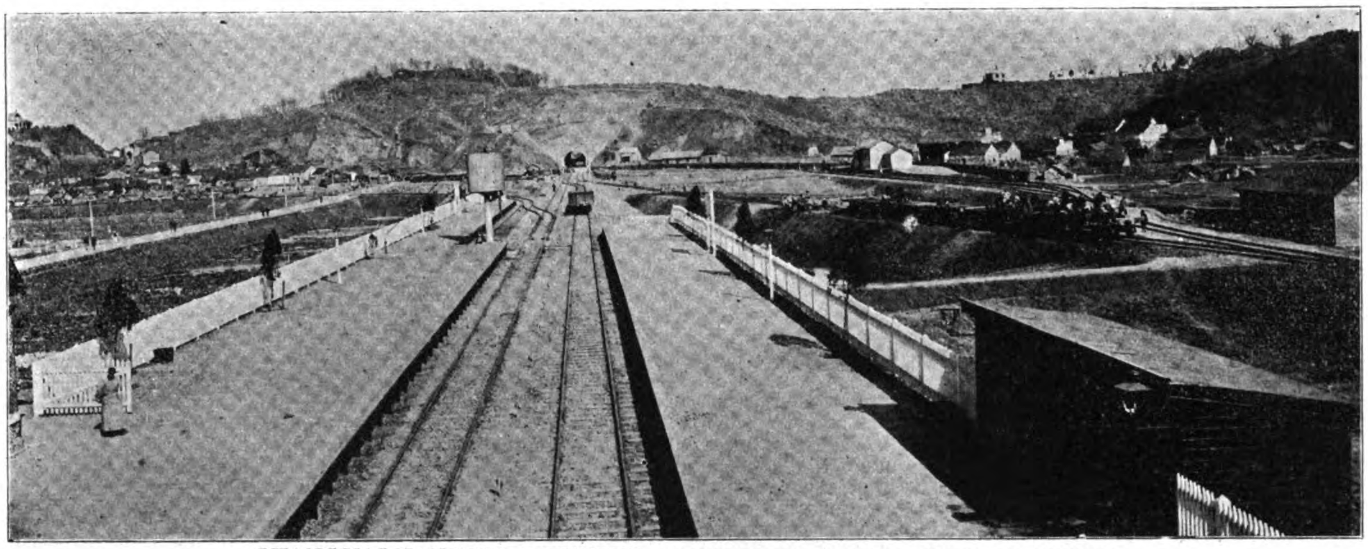
Mile 144 to 193. Average Bottom and Top Ballast $5.40 per fong on bank and in Depots.

The capital cost of the permanent way, including all materials, laying, lifting, boxing up and maintaining for an average of six months after opening for traffic, works out as follows:

	Per mile.
Mile 1 to 56............	$34,828.49
Mile 56 to 80...........	29,236.85
Mile 80 to 144..........	26,601.60



SHANGHAI-NANKING RAILWAY.—BRIDGE OVER CANAL



SHANGHAI-NANKING RAILWAY.—CHINGKIANG STATION, VIEW OF TUNNEL

NOTE.—The mileage is calculated as measured on centre line which partly accounts for the excess in cost per mile from mile 1 to 56 which is due to the greater mileage of sidings and to the extra cost of ballast (about $4,000 per mile) due to transport charges.

The figures are not yet available from mile 144 to 193, the line having only recently been opened to traffic, but the Author anticipates the rate per mile will not exceed $26,000.

Chinkiang Tunnel.—The only tunnel on the line is situated at Chinkiang, the railway being carried through the Fort Hill on a falling gradient of 1 to 300 into Chinkiang station.

Many trial lines were run with the object of trying to eliminate the tunnel altogether, but it was exclusively proved that it was quite impossible to approach Chinkiang city excepting on a back shunt, the additional cost of which would have exceeded the cost of the tunnel work.

The question of constructing a single or double line tunnel in the first instance was duly considered in 1904, and it was unanimously agreed that a double line tunnel should be built.

The original length of tunnel was fixed at 500 yards, but this was subsequently modified, the approach cuttings at either end being extended, and the tunnel as built measures 1,320 feet from face to face.

The strata passed through for nearly the entire length consists of a shaly sandstone rock having several faults and streaks of graphite with pockets of China clay.

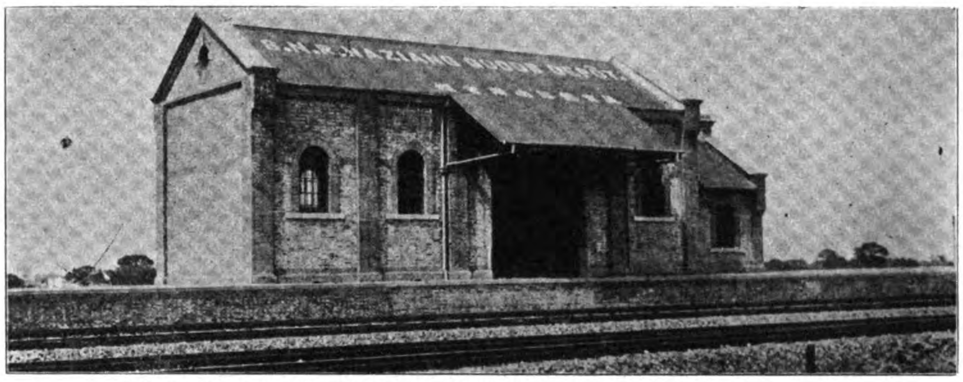
The shaly nature of the rock necessitated the arching of the roof throughout the entire length of the tunnel and also lining the side walls which work was carried out in brickwork in cement; no invert was, however, deemed necessary.

The dimensions of the tunnel section are as follows:—

28′ 2 3-16″ wide at arch spring, 27′ 3″ at rail level, height from rail level to soffit of arch 21.2″.

The following method of construction was adopted:—

A trial shaft was sunk at about the centre of the tunnel work starting on the 17th July, 1905, rock being encountered at a depth of 50 ft. below surface on the 24th of that month. By the end of August the shaft had reached a depth of 85 ft. or below the crown of the tunnel. Work was started in August on driving the bottom heading at the west face of the tunnel. By the end of September the shaft had reached its full depth, water being encountered at about rail level or 115 ft. from the surface. The shaft was circular, 8 ft. in diameter, lined with brickwork cement for the first 50 ft. to the rock. A bottom heading, 8′ 6″ at the base and 6′ 6″ high, was commenced in both directions, that is, east and west, a small amount of water being met which was, however, easily dealt with; the rate of progress being at first about 2 ft. a day in either direction, and 4 ft. a day in the heading from the west face. By the end of the year 1905, 425 ft. of heading had been driven. The headings from the shaft and west face met in May 1906, an excavation for a shaft length was immediately commenced. During the next few months the progress of the work was more rapid, the Chinese miners who at first were quite unaccustomed to the work had gained more experience under European supervision. At the end of the year 190 ft. of tunnel had been excavated and lined and break ups started between the shaft and the east face, giving in all 6 working faces. In May 1907 a record length, namely 190′ 6″ was reported.



SHANGHAI-NANKING RAILWAY.—NAZIANG GOODS STATION

The tunnel was completed, the first engine running through, on February 27th, 1908.

It is worthy of record that during the progress of the work not one single fatal accident occurred, this being an exception in the author's experience of tunnel work, even in England, where trained workmen are available.

The whole of the excavation and brickwork in the Tunnel was carried out by Chinese labor under European supervision. Work was greatly facilitated by the adoption of electric lighting.

The fronts are faced with cement concrete blocks with copings and string courses of the same material.

The total cost of the tunnel amounted to $370,000 which figure may in all probability be slightly reduced by a credit from sale of plant. In this connection it is interesting to note that several tenders from European firms were received in the early stages of the work for the construction of a single line tunnel 500 yards in length, the lowest of which, including cutting approaches, amounted to £60,000 or approximately $600,000.

Stations and Buildings.—It would be quite possible to write a paper on this subject alone, and the author feels that he cannot more than briefly describe the works under this heading.

Workshops.—The locomotve erecting and carriage building workshops have been constructed at Woosung near the Whangpoo River bank where the Railway possesses large water frontage, and where a jetty with two lines of rails equipped with shearlegs and crane for landing heavy materials was constructed in the early stages of the work.

The principal buildings are:—

The erecting shop, 160′ long×140′ wide, having 4 lines of pits and one through road for materials, adjoining the machine, smith and boiler shop, 120′×120′; the power house, 40′×40′; and boiler house, 46′×47′, being under the same roof. The height of the building from floor to roof truss is 33′ 7¾″. The machine shop is equipped with modern machinery electrically driven, a description will be given later on of the installation. The foundry has an area of 3,200 feet, being 80′ long×40′ wide; saw mill 80′×40′; carriage, repair and paint shop, 160′ long×120′ wide; carriage building shop, 120′×120′; store, 120′×40′; locomotive superintendent's office, 100′×45′.

All the buildings are constructed of brick on cement concrete foundations carried on piles, corrugated iron roofing, the erecting, machine and smiths, carriage and paint shops being built with northern lights glazed with Mellows patent glazing bars and quarter rough rolled plate glass.

The roofing is carried on steel stancheons at 40 feet centres in both directions, the intermediate trusses being carried on steel lattice girders. The two 20-tons electrically driven cranes traversing the entire length of the erecting, boiler and machine shops are carried on steel plate girders. An 18-ton hand travelling crane is provided in the carriage repair shop.

The floor of the machine shop is laid with hardwood blocks, the other principal buildings being floored with concrete cement finish.

The cost of the principal buildings was as follows:—

Erecting, Machine, Smith and Boiler Shops, Power and Boiler Houses	$187,535.83
Carriage and Paint Shop	49,512.62
Foundry	12,051.38
Saw Mill	8,581.98
Locomotive Superintendent's Office	15,997.97
Store Building	13,055.57

Stations.—There are 37 stations between Shanghai and Nanking inclusive, which may be briefly classified as follows:—

1. Passing stations, provided with loops 2,500 feet in length for crossing trains and up and down passenger platforms, there are 25 of these; of this total 9 are provided with locomotive water supplies and ashpits, and 4 are engine changing stations with running sheds, turntables, coal stages, etc., 10 are goods stations with goods sheds and platforms, offices siding accommodation, 3 of these in addition have cattle docks and pens, and 3 stations are provided with 60-ton weighbridges.

2. Flag stations, provided with one platform and buildings commensurate with traffic requirements, no siding or passing accommodations. There are 12 of this type.

Station Buildings.—Three types [of buildings have been generally adopted.

Those erected at stations where the passenger traffic is considerable consist of a single storied building with 6 rooms, namely, a general hall, booking office and telegraph room, station master's office, post office or goods agent, and two small waiting rooms.

The floors of the buildings in all cases have been fixed at platform level, which is carried up 2′ 3″ higher than rail level. The corrugated iron roofing was carried out on either front of the building to form a verandah.

There are five of this type of building between mile 1 and 144. The cost varied in accordance with the depth below platform level from $7,973.65 to $12,241.98; the average for the five buildings being $8,583.

One type is practically half size of the building already described, being designed so that it can be easily extended should circumstances require. It contains 3 rooms, namely, a general hall, booking office, station master's and telegraph office.

Ten of these buildings have been erected at a cost varying from $3,988.90 to $9,943.94, the average for the ten being $6,050.

The last is a type which has been used at Wusieh, Changchow and Tanyang with slight modification, but at these stations only a single story has been erected; the building illustrated has been erected at Nanking, the upper stories being used for staff quarters.

The author considers this building most suitable for this country, the large covered waiting area between the two blocks of buildings being greatly appreciated by the Chinese travelling public.

The average cost of the one-storied building works out at $22,047.32.

Special buildings have been designed for Shanghai and Soochow.

At Shanghai a new passenger building, with four floors for general offices, is being erected from design prepared by Mr. Charles E. Barry, F.R.I.B.A., of London.

The work is not sufficiently advanced to give details of cost.

The main walls of the building have been carried up to first floor level, the foundations of this work having been done departmentally. The building to first floor level to a height of 21 ft. has been faced on three sides with Tsingtao granite. The foundations are in cement concrete on piles. A contract has recently been let to a native contractor to complete the building.

Steel stancheons supporting the girders carrying the main walls above the first floor are founded on armoured concrete on piles. The whole of the building will be of fire proof construction with steel joists and concrete floors.

The passenger platforms at Shanghai have been completed and consist of one island platform 1,450 ft. in length, and shorter platform forming one side of the bay 650 ft. long. There will be an open space in front of the building 100 ft. wide, and it is proposed to cover this area and one of the platforms with an awning roof.

The platform walls are of brickwork in lime corbled out at the top to support the concrete coping which projects 12″ from the face of the wall being 2′ 3″ above rail level. These copings were cast in moulds at Soochow at a cost of 60 dollar cents per cubic ft. They are 3′ long × 2.9″ wide, 5″ thick at the back, and 4½″ at the face, the upper edge of which is bull nosed. They are fluted on the surface to prevent slipping. The type of wall and coping has been adopted at the majority of stations between Shanghai and Chinkiang. The total cost of platforms at Shanghai, inclusive of all filling, walls, and coping was $16,612.22.

Considerable work had to be carried out in making new approach roads to the Station, and this has been done so as to facilitate in every way easy access for traffic. The Shanghai Electric Tramway runs past the station, and when the service is in working order will prove of great benefit to railway passengers.

The other principal buildings which have been erected at Shanghai are the locomotive running shed, 220′ long × 100′ wide, with accommodation for 12 main line engines, the shed is provided with continuous pits and four roads fitted with hydrants for washing out boilers, foreman's offices, running room, mess room and quarters for the staff, together with a machine shop for small repairs. The roof is of timber with unequal sided trusses, the northern lights being glazed, the other side covered with corrugated iron. The whole of the foundations were in cement concrete on piles.

The total cost of the running shed amounted to $62,455.97.

The carriage cleaning shed, 370′ long × 61′ 3″ wide, to hold 12 main line coaches, is provided with water troughs heated by steam from a locomotive boiler with 3 lines of pits for the entire length of the building; which is constructed of timber on a brick plinth with wooden columns carrying the roofs, the latter being of corrugated iron. The flooring is of cement concrete, cement finished.

The total cost was $28,548.18.

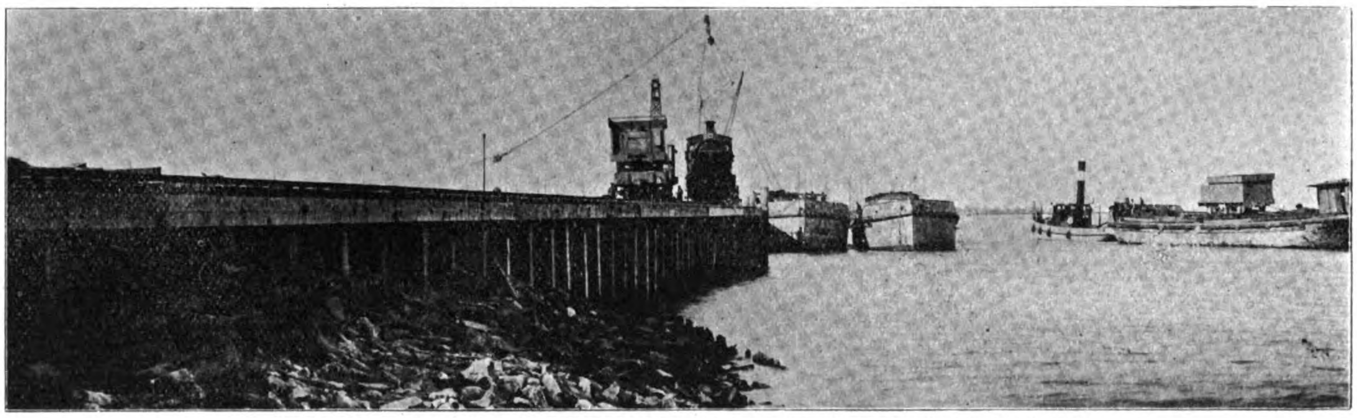
The electrical power house, including boiler house and store offices 132′ long × 46′ wide, built of brick with steel truss roofs covered with corrugated iron. The dynamo room has a tiled floor.

Cost of building $19,219.60.

The usual quarters have been provided for the native and foreign staffs.

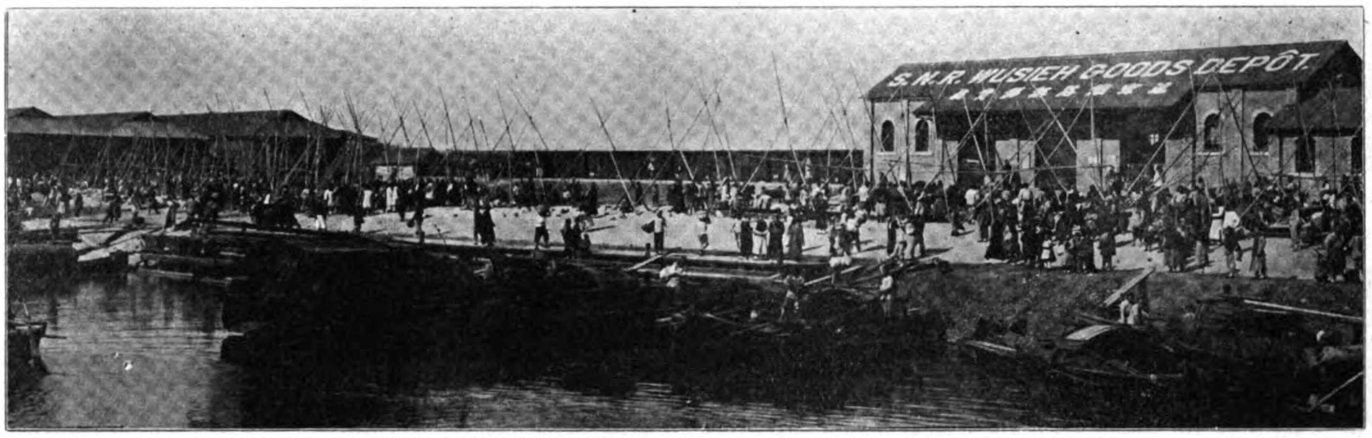
Soochow Station.—This building was designed to accommodate the very considerable passenger traffic at this important station.

It is a one-storied building and consists of a central concourse area 63′ long × 35′ wide, with 6 ticket windows and contains on one side the usual offices, namely, telegraph, station master, booking office, parcels, strong room, dispensary, medical officer, porters and guards' room, the latter four rooms being entered from a separate passage way. On the other, or west, side of the building official waiting rooms, ladies' wait-

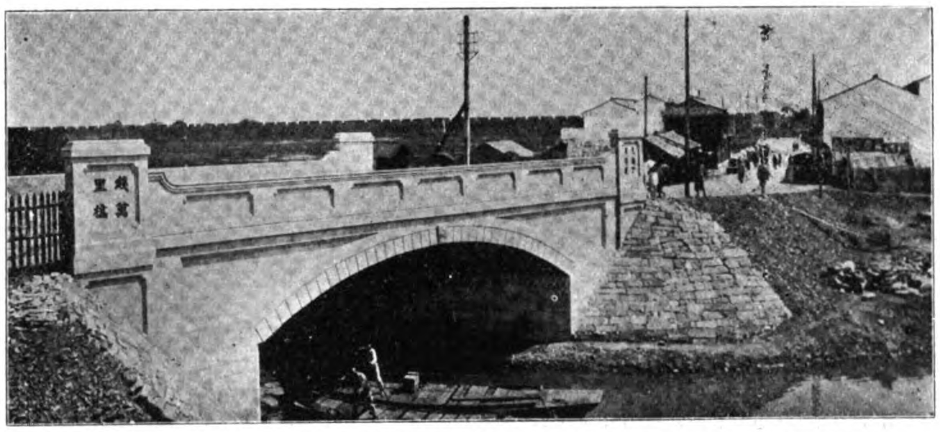


SHANGHAI-NANKING RAILWAY.—DEEP WATER TERMINUS AT WOOSUNG

SHANGHAI-NANKING RAILWAY.—ARCHED BRIDGE OVER CANAL

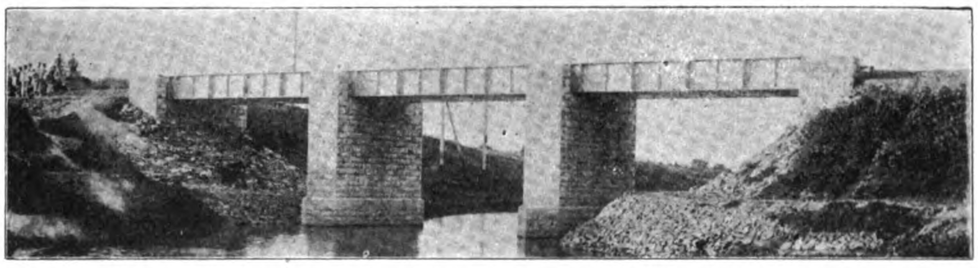


SHANGHAI-NANKING RAILWAY.—WUSIEH GOODS DEPOT



SHANGHAI-NANKING RAILWAY.—CONCRETE ROADWAY BRIDGE AT SOOCHOW

SHANGHAI-NANKING RAILWAY.—THE RAILWAY SCHOOL AT SOOCHOW



SHANGHAI-NANKING RAILWAY.—TWO PIER GIRDER BRIDGE OVER CREEK

ing room, refreshment room and kitchen are provided.

The foundations are in concrete and the main walls carried up on arches to below platform level.

The building is in brickwork in lime, the exterior faced with blue brick with cast concrete plinths, chamfered quoins, moulded string courses and copings. The interiors of the concourse area and corridors are faced in red brickwork, pointed in white lime mortar, the other rooms have plaster walls and ceilings. The roof is covered with red tiles.

The total cost of this building, inclusive of deep foundations, was $71,532.

The station is provided with two platforms 850 ft. in length, the up platform being an island one.

A subway under the main line between the two platforms is provided, this work is carried out in concrete the rails being carried on through steel girders. The platforms are carried over the subway on old steel sleepers bedded in concrete. The cost of this subway complete was $7,191.45.

The whole of the station site had to be raised four or five feet the land having originally been low lying under paddy.

Considerable expense had to be incurred in constructing a macadamised road approach to the station building, the cost has, however, been fully justified, more particularly owing to the fact that the local authorities of Soochow have extended their maloo from the Cheng Men Gate and joined up with the railway road, it being now possible to drive in a carriage from the railway station right round the west and south walls of the City, a distance of nearly 6 miles.

At all stations permanent brick quarters have been provided for the station staff at an average cost of $1,850 per building. At some of the principal stations overhead footbridges have been built, the steel lattice bridge at Wusieh was erected at a cost of $3,452.98, at the other stations timber bridges have been built: average cost $320 each.

Station Machinery.—Locomotive Water Supply.—At Shanghai station four cast iron tanks each of 10,000 gallon capacity have been erected on a brick tankhouse, the bottom of the tanks being 40 feet above rail level; water is taken from the Shanghai Water Co., by a 9′ cast iron main. A 9′ main from this tank supplies the pillar water cranes at the engine shed and the hydrants and other service in the yard. A 3,500 gallon parachute water tank has been erected at the NE. end of the station to supply the engines on the Woosung Branch, these tanks discharge their contents in 1½ minutes.

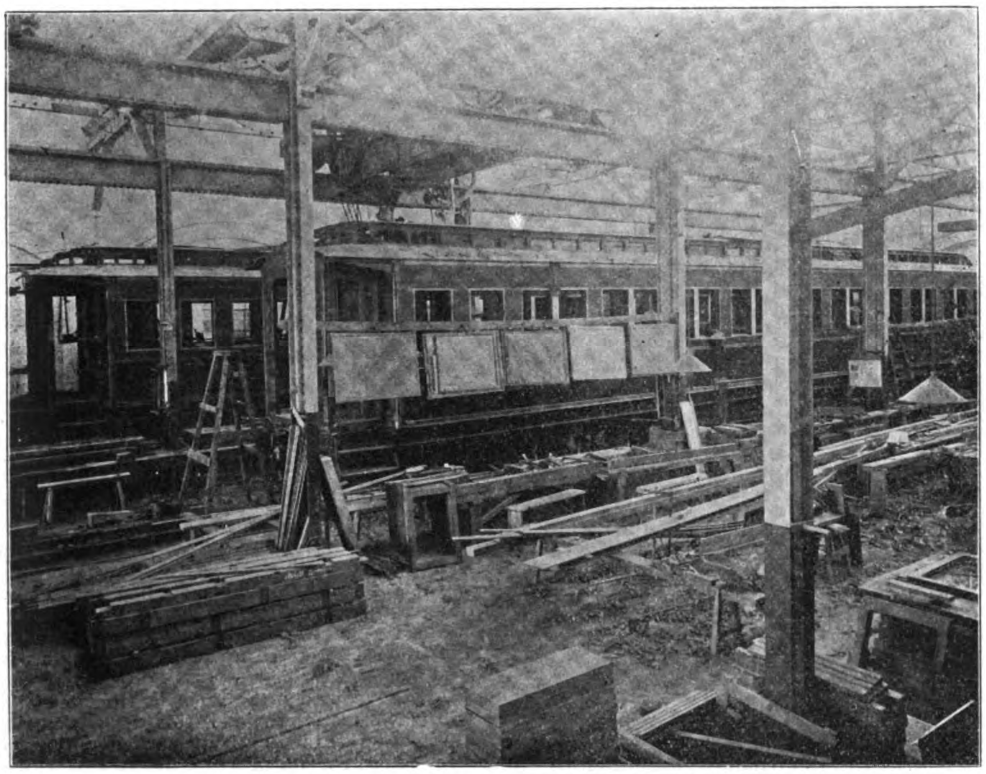
At the smaller watering stations, 10,000 gallon tanks have been erected supplied from settling tanks connected by pipe to nearest creek, the water being pumped into the tank in some instances by hand, but at the larger stations as Wusieh, Changchow, Chinkiang and Nanking by direct acting self contained steam pumps with vertical boilers, the f.o.b. price of these being £126.5.0. each complete.

At Soochow, where current is available an electrically driven pump has been supplied.

At all watering stations other than engine changing where the engines are supplied at the shed by water cranes, 3,500 gallon parachute tanks are erected by the ashpits at one end of each platform.

TURNTABLES are 60 ft. diameter of the central balance descriptions founded on cement concrete with race walls of the same material; the f.o.b. price was £373, and including erection and foundations averaged $6,000.

Signaling.—Distant and home semaphore signals have been erected at all passing stations



SHANGHAI-NANKING RAILWAY.—INTERIOR OF CAR SHOPS AT WOOSUNG

controlled by levers from a locking frame in the station building, the home signals being interlocked and all facing points handlocked and detected; this work has been entirely done locally, chiefly at Soochow under the supervision of Mr. A. C Clear, Executive Engineer, who has received able assistance from Mr. Yang, Assistant Engineer

Owing to the nature of the country from Shanghai to Nanking, hardly without exception the only possible sites were in low swampy ground which had to be raised, increasing the cost of foundation work generally.

Exclusive of Woosung shops and Shanghai the total cost to date of stations and buildings of all descriptions, such as staff quarters, engine sheds, godowns, platforms, passenger buildings (including all fixtures and furniture), station machinery with points and crossings, water supplies, weighbridges, signals, etc., etc., was as follows:—

		Per mile.
Mile 1 to 56........	$496,904.82 =	$9,034.62
Mile 56 to 80.......	153,335.93 =	6,389.00
Mile 80 to 144......	230,747.10 =	3,605.42
Mile 144 to 193.....	330,500.00 =	6,610.00

These figures are not final as there still remains some work of minor importance, however, to complete.

Plant. — Electrical Installations. — Woosung Workshops.—Erecting and small Machine Shops.—10 H. P. motor 600 R. P. M. belt driving on to countershaft running miscellaneous machines, such as milling, drilling, capstan and key way cutting machines, bolt and brass finishers, lathes, emery wheels and universal grinder.

25 H. P. motor 550 R. P. M. belt driving on to main shaft driving shaping and planing machines, drillers and screw cutting lathes and hydraulic wheel press.

27 H. P. variable speed motor 750-1000 R. P. M. driving through raw hide gearing to large wheel lathe.

22 H. P. variable speed motor 500-1000 R. P.M. direct coupled to countershaft of tyre grinding machine.

Smithy.—25 H. P. motor 550 R.P.M. and 10 H. P. motor 600 R.P.M. driving on to main shaft driving, plate roller, plate bender, band saw, punching and shearing machines, radial drill and blowers.

Saw Mill.—20 H. P. motor 550 R. P. M. belt driving on to countershaft running wood planer, band and circular saws and pattern makers lathe

The whole of the above motors are Dock Kerrs 4 pole shunt wound semi-enclosed type 220 volts, working in conjunction with Reyeolle fool proof starters.

The erecting shop and smithy are served by two 20-ton electric cranes of 3 motor type, E. C. C. pattern series wound motors having 15 H. P. motors for elevating, 8 H. P. for travelling and 4 H. P. for cross traversing, each being regulated and controlled through K type controllers.

There are about 500 16 C. P. lamps installed in the various buildings and 14 arc lamps, while the yard is provided with 5 circuits each of four 15 ampere Angold open type arcs.

The whole of the internal wiring is run in heavy screwed steel conduit and so far after 15 months working have not been troubled with condensation, though every precaution has been taken to eliminate this defect so prevalent in climates such as this. The whole of the outdoor wiring is carried out with solid bare copper wires run on treble shed insulators, utilizing wires of from No. 1 S.W.G. to No. 9.

Power House.—The boiler house is equipped with 2 Yates and Thom Lancashire boilers 28′ long×7′ 6″ diameter, designed for a working pressure of 120 lbs. per square inch.

In the engine room are two 150 K. W. Compound Belliss engines running at 425 R.P.M. each direct coupled to a compound wound 220 to 420 volt Bruce Peebles dynamo capable of giving out 680 amperes.

The control and distribution is controlled by a Kelvin & White switchboard, the power circuits being distinct from the lighting circuits, each sub circuit being protected by an automatic circuit breaker on one pole and a fuse on the other, while each dynamo panel is fitted with a maximum and reverse circuit breaker, on one pole and a fuse on the other these machines can be run in parallel, though at present the load does not require it.

There has just been erected a new saw mill which will be fitted with a log frame saw driven by a 12 H. P. motor of similar design to those above.

Total cost of installation including boilers, engines, dynamos, etc., and all labor complete, $77,935.58

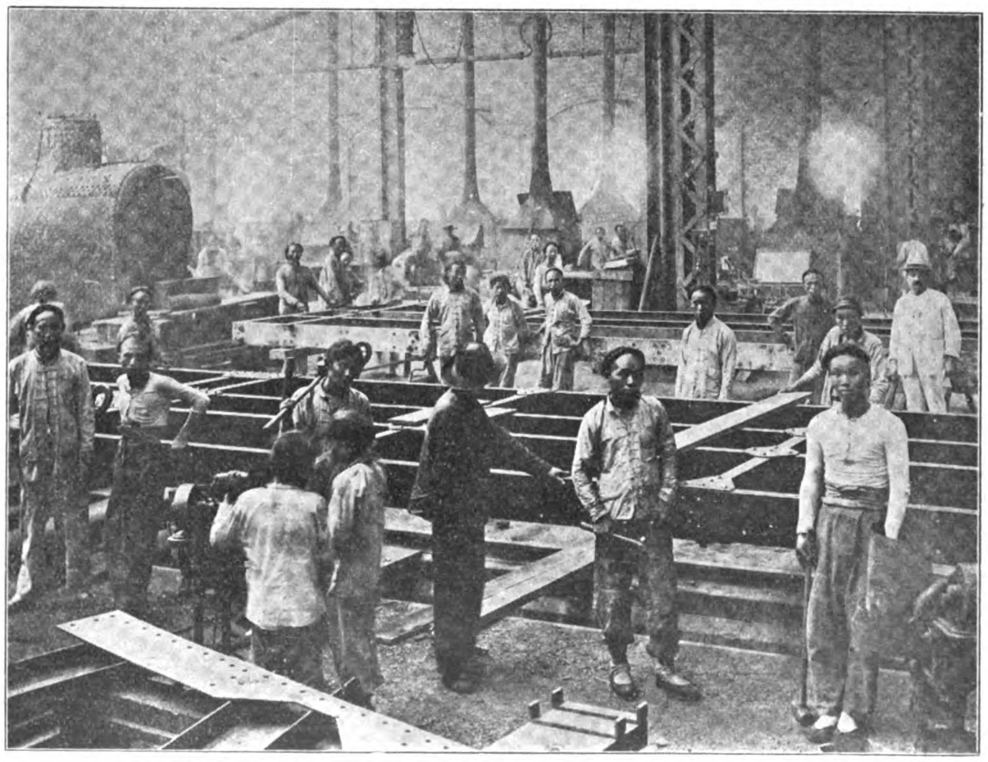
Shanghai Terminus and Goods Yard, Lighting.—In the power house are installed 2 Penman Lancashire Boilers 2″ long×7′ 6″ diameter working at a pressure of 120 lbs. to the square inch, working in conjunction with a Greens economiser electrically driven, supplying steam to two 85 K.W. Compound Belliss engines running at 425 R.P.M. each direct coupled to a E.C.C. compound wound interpole dynamo generating at a pressure of 440 to 460 volts.

As we shall be distributing our energy from here on the 3 wire system, a 66 K.W. Balancer is erected to compensate for the out of balance.

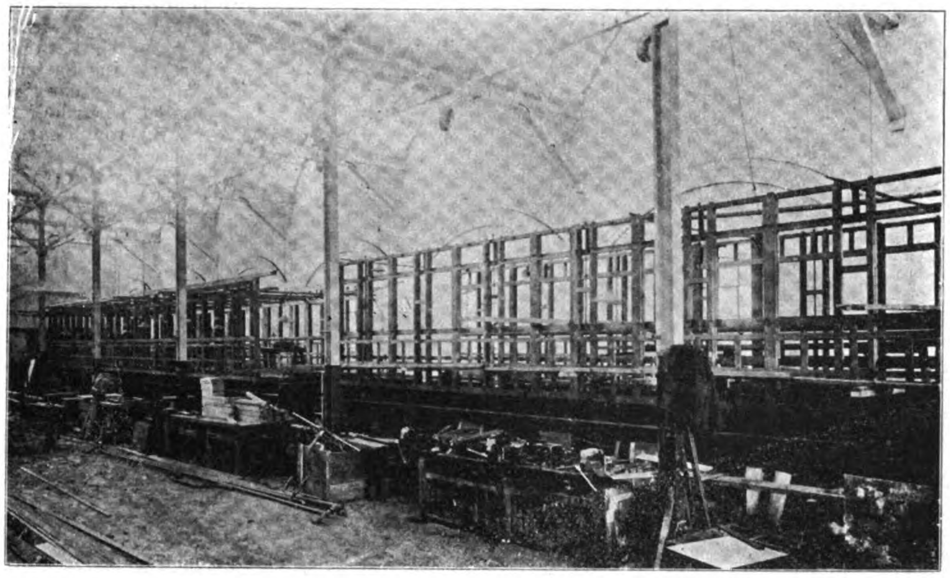
The approach road, platforms, goods and shunting yards are illuminated by circuits of eight 10 ampere Santoni flame lamps in series, capable of burning about 16 hours without renewal of carbons.

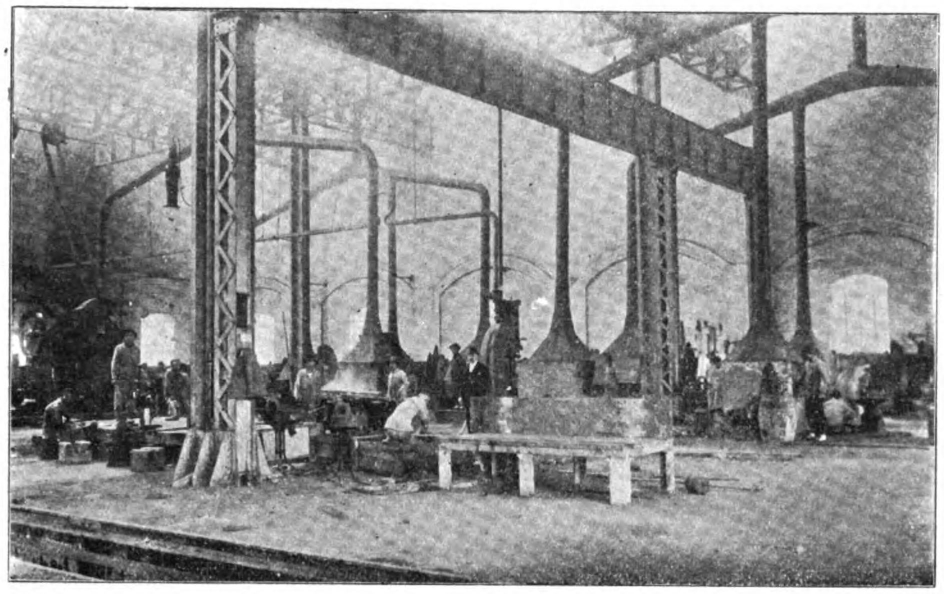
The carriage and running sheds are lit by means of 8 ampere Santoni enclosed arcs two in series on 220 V.

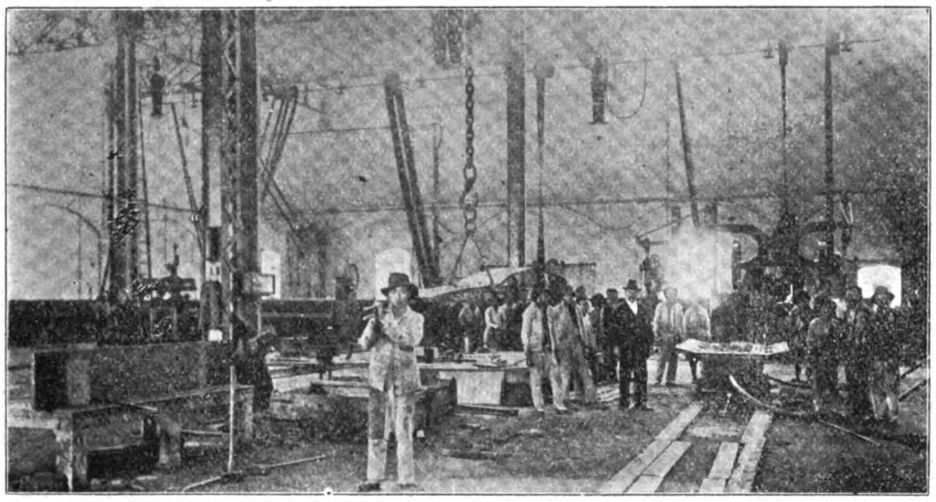
The work in this district is still proceeding and when the new station buildings and goods



SHANGHAI-NANKING RAILWAY.—CAR AND LOCOMOTIVE SHOP







SHANGHAI-NANKING RAILWAY.—WOOSUNG CAR SHOPS

sheds are completed will have a lamp connection of about 800 16 C.P. lamps 64 arc lamps.

Ample room is provided in the boiler and engine rooms for extensions, but at present the maximum load is only about 35 to 40 K.W.

Adjoining this power house there is now in course of construction of head trains lighting depot where all erection and maitenance of the cells and dynamos used in train lighting will be carried out, also the testing of dynamos and charging of cel's.

Total cost to date $65,759.68.

Soochow.—The power house here is equipped with two 25 N.H P. Ruston Proctor Loco. type boiler, 120 Ins. per square inch, supplying steam to a 30 K.W. Compound Belliss engine direct coupled to an E.C.C. compound wound multi-polar interpole generator supplying current at a pressure of 220-230 volts. Room is provided for an additional set, though for the present it is not proposed to be fitted.

The current is distributed from a Crompton switch board of their standard design for 5 feeders.

The work here is in progress of erection, though we have fitted and in operation the station buildings with incandescent lamps equal to about 200 16 C.P. while the approach road is illuminated by about 20 32 C.P. glow lamps.

The running shed and staff quarters are to be illuminated electrically and an electric pump is provided for the tank house.

Rolling Stock.—Locomotives. Three types are in use on the Railway.

A Class. Tank engines, 6 wheel coupled, 18″ cylinders, 26″ stroke, 4′ 9″ wheels. Full working weight 74 tons.

B Class. Goods Tender Engines, 6 wheel coupled, 18″ cylinders, 26″ stroke, 4′ 9″ wheels. Full working weight 102 tons.

C Class. Passenger Tender Engines, 4 wheel coupled, 18″ cylinder, 26″ stroke, 6′ 7″ wheels, full working weight 98.35 tons.

Coaching Stock. All the Coaching Stock is of the 4 wheel bogie type, the following are the leading dimensions:—

	Feet.	*Ins.*
Length of underframe...........	68	0
Width over sole bars............	9	5
Centres to centres of bogies.......	47	0
Wheel base of bogies............	9	0
Diameter of wheels..............	3	6½
Length of body over mouldings....	68	0¾
Width of body outside............	10	0
Height from rail to floor level......	4	5
Height from rail to coupler centre (loaded).....................	3	6
Height from rail to top of carriage..	14	0

The carriages are entered at the vestibule ends and there is through communication from end to end of all passenger trains.

The buffing and draw gear is of the Janney Central Coupler type with buffing plates, etc. All cars are fitted with the Westinghouse Brake with improved valves and are electrically lighted by the Stones system; steam heating is provided from the engine. There are three classes, first, second and third. The first class Corridor Kitchen Cars have seating accommodation for 48, composite carriages for 50 first class and 42 second class, third class for 100, Composite Brake and Luggage Vans for 60, 3rd class and Composite Brake and Mail Vans for 40, 3rd class.

Wagon Stock.—Three types of goods wagons have been adopted.

All steel medium sided 4 wheel bogie wagons on 38 feet under-frames, 35 tons capacity.

All steel covered goods 4 wheel bogie wagons on 38 feet under-frames, 30 tons capacity.

All steel 4 wheel wagons on 18 feet under-frames, 15 tons capacity.

All steel bogie Brake Vans or 38 feet under-frames.

All stock is equipped with the Westinghouse Brake.

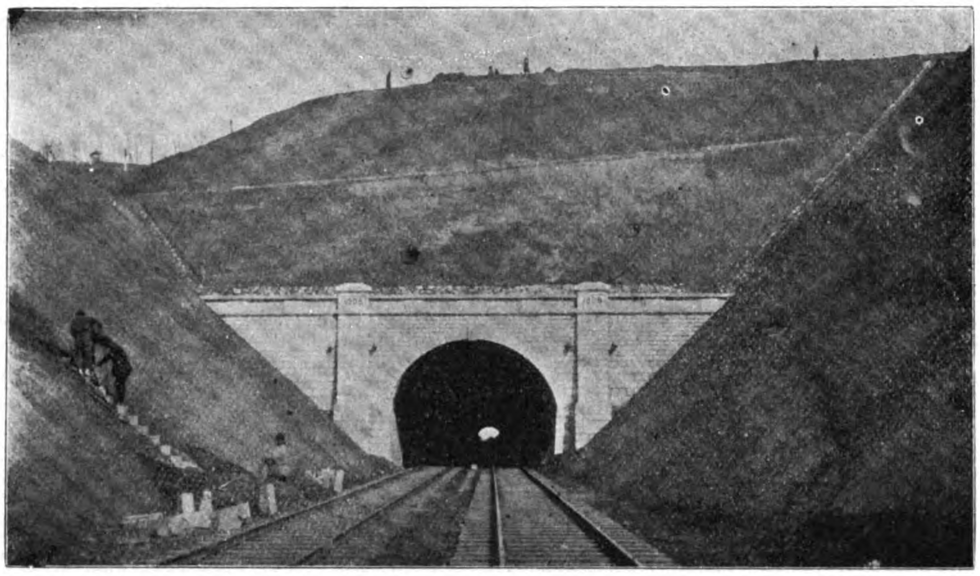
The following is the present equipment of the Railway excluding the old Woosung Stock, new stock building at Woosung, and construction locomotives:—

2 A. Class Engines.
10 B. Class Tender Engines.
12 C. Class Passenger Engines.
5 First Class Kitchen Cars.
5 First and Second Composites.
18 Third Class Cars.
5 Third Class Compo. Brake & Luggage Vans.
5 Third Class Compo. Brake & Mail Vans.
150 Medium sided Wagons.
40 Covered Goods Wagons.
50 4-Wheel Wagons.
12 Steel Brake Vans.

The whole of the Locomotives, Carriage and Wagons stock was designed and passed for shipment by the Consulting Engineers.

Electric Lighting of Coaching Stock.—The whole of the new rolling stock is equipped on the Stone's patent system of train lighting.

Briefly each coach is fitted with a dynamo and two batteries of storage cells, while stationary the lamps are lit off the cells and when running the dynamo supplies current to the lamps through a small resistance, one of the batteries at the same time receiving a small charge, while the other acts as a regulator to the lamps, our voltage being 24 volts on the lamps.



SHANGHAI-NANKING RAILWAY.—CHINGKIANG TUNNEL ENTRANCE

The principal feature of the system is the dynamo and its method of suspension, the dynamo being suspended by one corner of its frame by means of an adjustable link by which the dynamo can be drawn closer to, or taken further away from the pulley on the driving axle, so permitting of the machine being set for any required amount of current, this also prevents its exceeding that amount however the speed may increase.

The suspending link is adjusted so that the driving belt draws the dynamo out of the diagonal position in which it would naturally hang, thus putting a definite tension on the belt just sufficient to absorb power equivalent to the amount of electricity required. From this it will be seen that when the pull on the belt exceeds the weight on the belt (due to the increase of speed of the train) the dynamo will be automatically drawn towards the driving pulley on the axle (by virtue of its one sided suspension) and so allow the belt to slip whilst the armature will continue to revolve at its normal speed.

The dynamo always supplies current in the one direction, irrespective of which direction the coach may be travelling in, this is effected by means of a rocking arm switch.

When the dynamo reaches a certain speed, a centrifugal governor automatically connects first the dynamo field to the regulating battery and then the cells to be charged to the brushes of the dynamo.

Immediately this occurs and as the charging of the batteries commences, a resistance of correct value is connected in the lamp circuit and so prevents the lamps being overrun, due to the extra voltage required in charging the cells.

The rocking arm is also in connection with a see saw switch which changes over the battery with the direction of running, so that the charged battery becomes the regulating battery.

The act of switching off the car lights puts sets of batteries in parallel, when half the generated current passes half through each battery.

All the dynamos are ring oiled.

At the moment of writing there are 37 new coaches and one old type coach converted into an Inspection coach all of which are fitted each completely independently equipped aggregating just over 800 lamps of 8 and 5 C.P. and about 40 fans, the fans being fitted in the dining cars and 1st and 2nd Composites.

With regard to the old Woosung line stock, these have been made into 2 block trains each of 4 coaches, and lit up on the block train method, one brake van fitted with dynamo and cells as in the other coaches, utilizing flexible connections linking up with the roof wires of the 3 remaining coaches of that train.

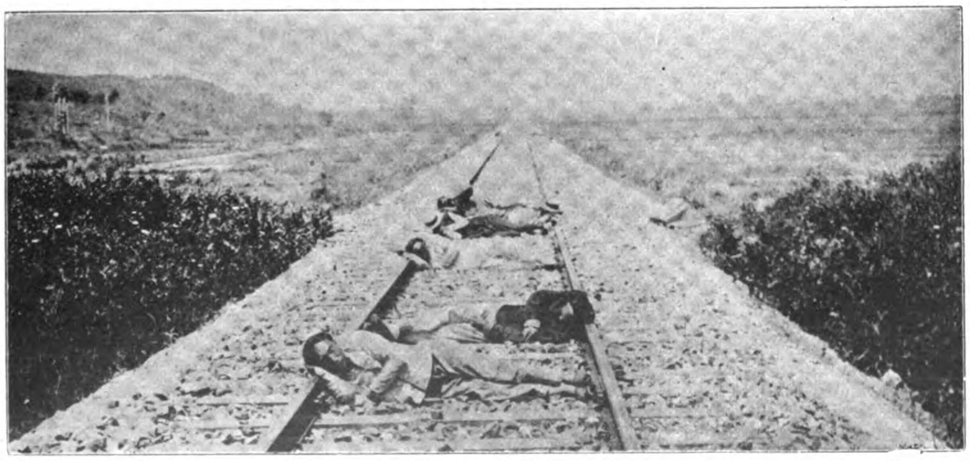
It might be added that there are just over 1,000 storage cells already in daily operation in connection with this work.

The machines in use on the dining and composite cars, also block trains, are capable of giving out 80 amperes, while those of the thirds are designed for 40 amperes.

SUMMARY OF COST BY MAIN HEADS AND COST PER MILE WITH PERCENTAGES

Main Head.	Total cost to end of Feb. 1908.	Cost per Mile on Single Line basis.	%
	Tls.	Tls.	
I. PRELIMINARY EXPENSES	18,648.89	81.08	.122
II. LAND	1,836,917.74	7,986.60	11.990
III. FORMATION (Earthworks, Double line Tunnel, Creeks, Roads Tls. 1,567,262.37. Deduct 2-5 cost Earthwork Double line to Soochow Tls. 156,572.47	1,410,689.90	6,133.43	9.208
IV. BRIDGEWORK (Major and Minor Bridges, Culverts, Drains Tls. 1,934,375.71 Deduct 5-12 cost Bridgework Double line to Soochow 323,411.82	1,610,963.89	7,004.19	10.514
V. FENCING	38,922.93	169.23	.254
VI. ELECTRIC TELEGRAPH	51,692.17	224.75	.338
VII. TRACK	4,811,536.38	20,919.72	31.405
VIII. STATIONS AND BUILDINGS, Buildings and Fixtures, Station Machinery; Furniture Workshops and Stores, etc	1,553,891.98	6,756.05	10.142
IX. PLANT, Construction, Locomotive, Carriage & Wagon Tools and Plant, Workshop Machinery and Electrical Plant, Engineering Tools and Plant, Steam launches, etc., printing	392,864.62	1,708.10	2.564
Locomotive, Carriage and Wagon Rolling Stock	2,026,120.45	8,809.22	13.224
X. GENERAL CHARGES, Engineering (including cost of survey) Accounts, Stores, Direction, Medical, Locomotive, Traffic, Chinese Department, Miscellaneous	1,568,862.90	6.821.15	10.239
	15,321,111.80	66,613.52	
Add 1-5 cost of Earthwork Soochow Double line 156,572.47. Add 5-12 Bridgework Soochow Double line 324,411.82	479,984.29	2,082.54	
TOTAL FINAL CONSTRUCTION HEADS	15,801,096.09	68,696.06	
Deduct 2-5 cost of Earthwork. Deduct 5-12 cost of Bridgework Soochow Double line	479,984.20	2,082.54	
	15,321,111.80	66,613.52	
ADD.			
Commission purchases England	219,181.19	952.96	
Commission purchases China	111,808.45	486.12	
Nanyang College Donations	10,000.00	43.48	
Exchange account	56,151.99	244.14	
Likin confiscation accounts	3,825.64	16.64	
Land exchange account	9,247.34	40.21	
Total Taels	15,731,326.41	68,397.07	

MILEAGE, including Main Line Loops & Sidings, but excluding the Woosung Section		230 miles of Single Line.
Average cost per mile, including land, construction and equipment		Taels 68,397.07
@ an average rate of exchange of Tls. 7.08 per £ =		£9,661 per mile
Average cost per mile, excluding land and rolling stock.		Tls. 15,731,326.41
Land	Tls. 1,836,917.74	
Rolling Stock	2,026,120,45	3,863,038.19
		Tls. 11,868,288.22 = Taels 51,601.26
@ an average rate of exchange of Tls. 7.08 per £ =		£7,288 per mile.



THE LUXURY OF THE SHANGHAI-NANKING RAILWAY EXTENDS TO THE ROADBED, AND THE WOODEN SLEEPERS ARE AT TIMES HELD DOWN BY THE HUMAN VARIETY MUCH TO THE DISTASTE OF THE ENGINE DRIVERS, WHO MUST STOP THE TRAIN TO EXPLAIN TO THE COUNTRYMEN THAT THE TRACK IS NOT A FREE LODGING HOUSE.

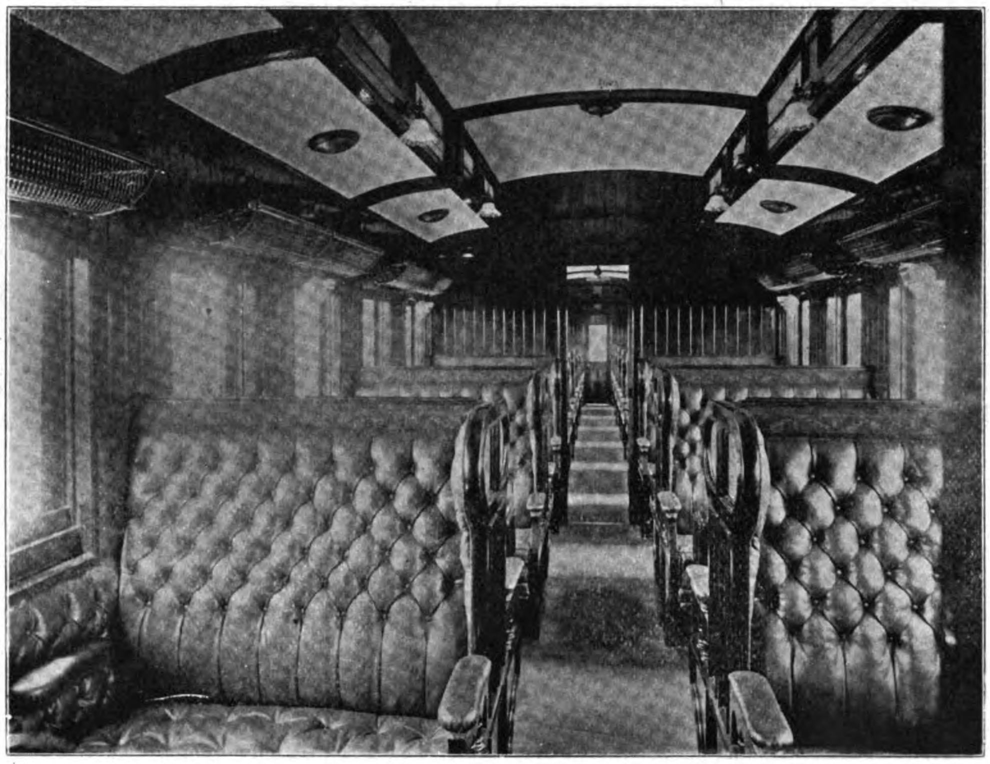
The above figures represent a fair statement of expenditure under construction heads proper. During the period of the work exchange fluctuated considerably and for the greater part of the time detrimentally against bringing sterling from Europe. The original estimates were based on Tls. 8 per £ sterling, but the average rate has been Tls. 7.08, or nearly 9% higher.

The writer commenced this paper by stating that the Loan Agreement authorized a loan not exceeding £3,250,000 at 90; the first instalment (£2,250,000 was issued at this rate of discount, but concessions were subsequently made and the second and last instalment, £650,000 was issued at 95½.

The total issue of loan funds to date being £2,900,000 nominal on which interest is payable, particulars being as follows:—

£2,250,000	@ 90	= £2,025,000	Discount.	£225,000
650,000	@ 95½	= 620,750		29,250
£2,900,000		£2,645,750		£254,250

(= £1,105 per mile of Single line).



SHANGHAI-NANKING RAILWAY.—INTERIOR OF FIRST AND SECOND CLASS CAR. BUILT BY THE METROPOLITAN AMALGAMATED RAILWAY CARRIAGE CO., LTD.

Leaving the net sum of £2,645,750 available, of this amount the following sums were earmarked under the terms of the Agreement.

Woosung Railway..........	Tls. 1,000,000.00
Land......................	1,836,917.74
Loan Interest from Flotation to March 31, 1908.........	3,055,782.16
	Tls. 5,892,699.90

at exchange 7.08 = £832,302.

Equivalent to £3,619 per mile of single line.

Generally.—In carrying out the work every effort was made to standardize details and working parts as far as possible. The importance of this policy is fully recognized in railway construction in Europe and other foreign countries, and should be particularly emphasized in this country, where railways are practically in their infancy, so as to obviate the necessity which otherwise would exist of stocking a multiplicity of spare parts for repairs.

Organization.—The construction of the railway was carried out departmentally, the work being divided up into districts under the charge of an executive engineer, with assistant engineers in charge of sub-divisions.

The first division, from Woosung to mile 1, on the main line, was under the charge of Mr. M. R. Sinclair.

From mile 1 to 56, from the commencement of work in 1904 to March, 1906, under the charge of Mr. G. W. Eves, Assoc. M. Inst. C.E. Clear being appointed on the latter's retirement to take up an appointment on the Canton-Kowloon Railway.

From mile 56 to 144, Mr. F. Grove, M. Inst. C.E., was in charge as executive engineer until May, 1907, when he was appointed engineer-in-chief of the Imperial Chinese Section of the Canton-Kowloon Railway; Mr. B. T. B. Boothby, Assoc. M. Inst. C.E., being promoted executive engineer until the 16th January of the present year, when he left the service to join Mr. Grove's staff.

From mile 144 to Nanking, including the tunnel, the executive engineer was Mr. J. G. Brakley, M. Inst. C.E.

Work was generally let by petty contract at schedule rates, day work being as far as possible avoided.

All rolling stock was erected at the Woosung Shops under the supervision of Mr. E. J. Dunstan, M. I. Mech. E., the electrical installations by Mr. W. J. Grey, electrical engineer.

The accounts department was under the supervision of Mr. E. R. Morriss, chief accountant and Mr. H. Middleton, deputy accountant.

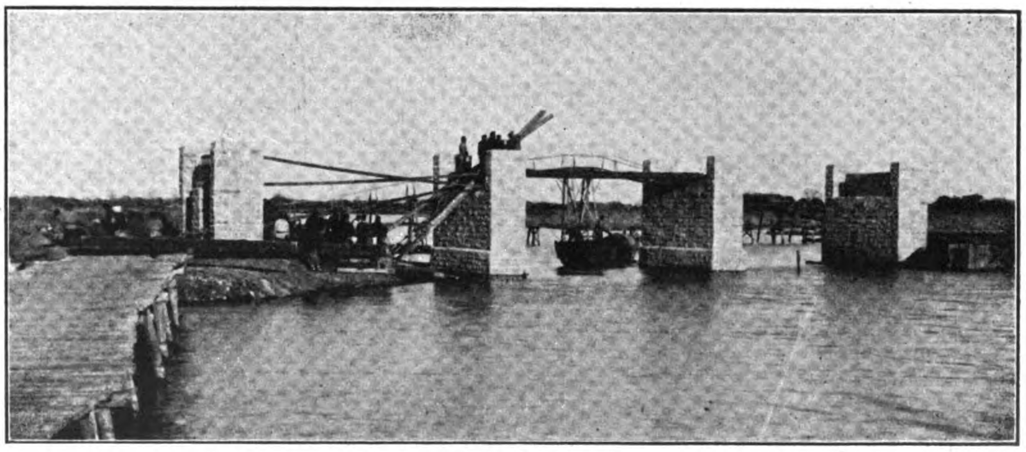
Until the arrival of Mr. A. W. U. Pope, the present traffic manager, the traffic department from 1905 until the end of 1906 was under the charge of Mr. H. P. Winslow, the present deputy traffic manager.

The stores department, from the commencement of the work until December last, was under the late Mr. C. F. Moule.

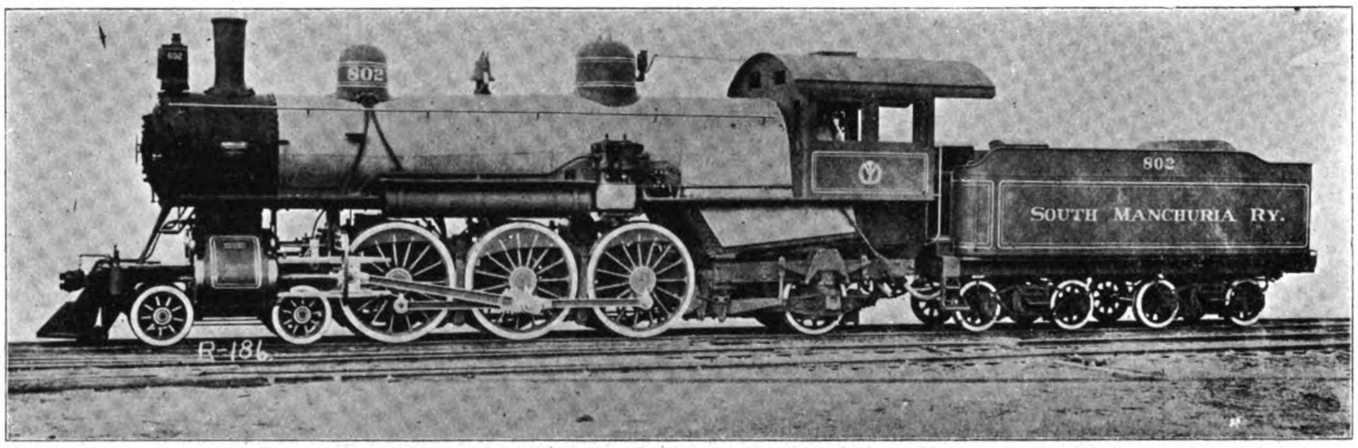
The author has to record with deep regret the following deaths which occurred among the staff during the construction work:

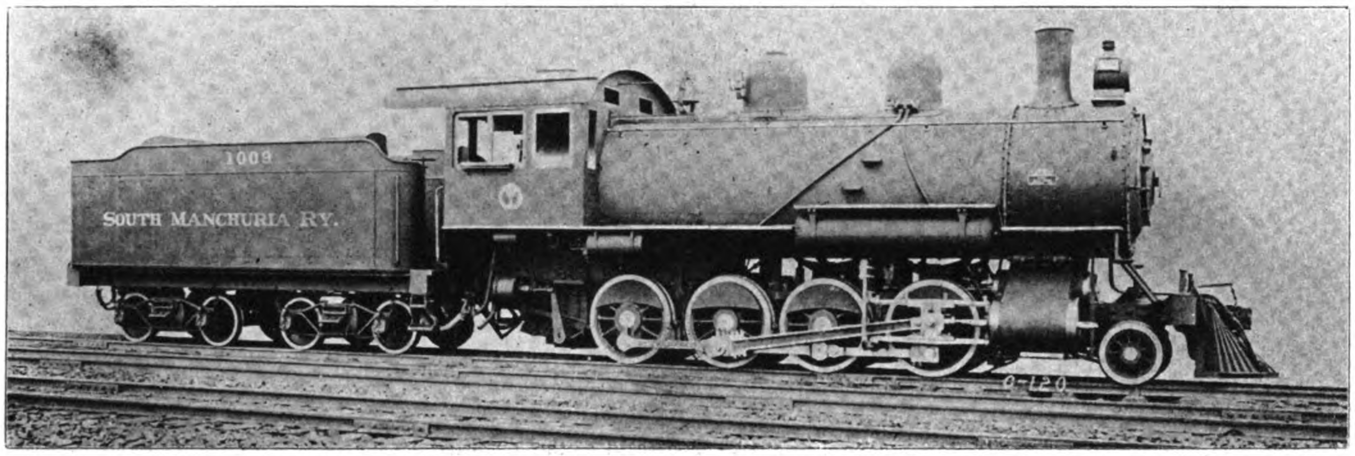
Messrs. R. Wells and W. L. Allan, assistant engineers, Mr. H. J. Easterbrook, assistant accountant, Mr. A. C. Walker, chief draughtsman, and Mr. C. F. Moule, chief storekeeper.

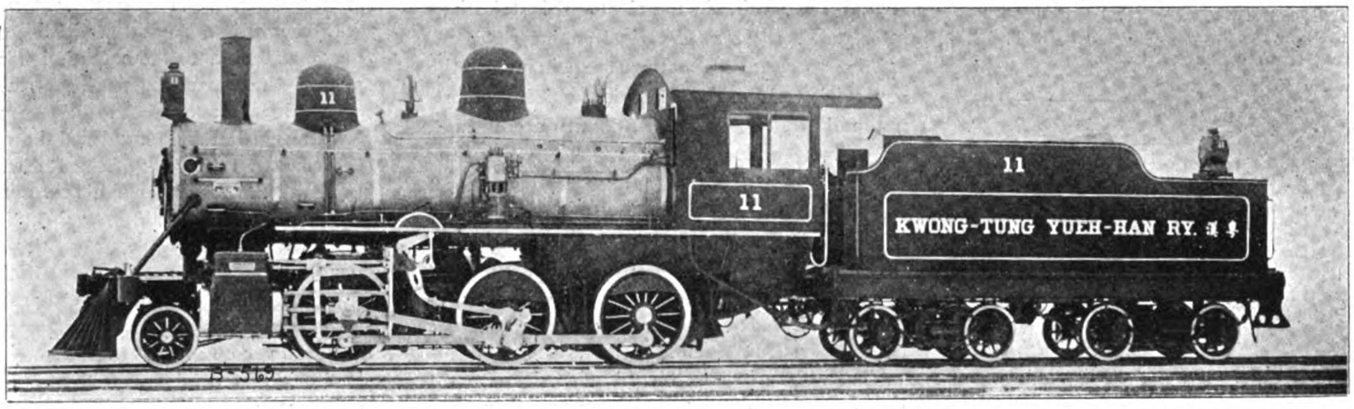
In conclusion, the author wishes to record his personal thanks to the commissioners, the joint agents, the consulting engineers, and members of all departments, both Chinese and foreign, for the cordial help rendered in carrying out the construction work of the Railway, and also to thank the members of his own staff, particularly Mr. C. G. Golding, Mr. J. S. Lee, chief draughtsman, Mr. W. N. Chow, the chief Chinese draughtsman, and the Chinese staff of the drawing office for the assistance they have given him in preparing this paper, and the diagrams in connection therewith. The author is also indebted to Mr. H. Middleton, the acting chief accountant, for the help given in connection with the figures contained in the summary quoted in the paper.

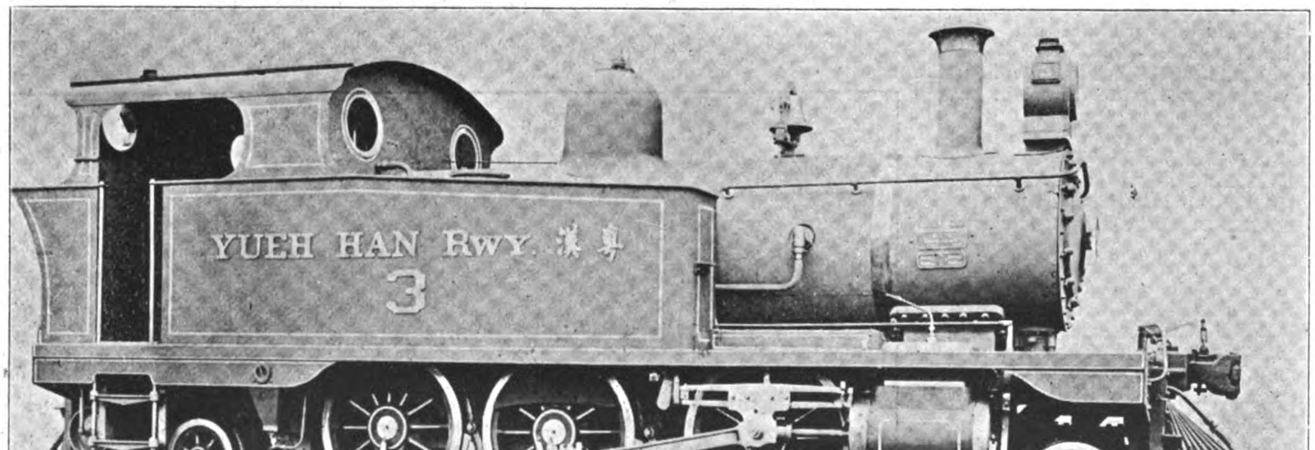


BRIDGING THE GRAND CANAL ON THE SHANGHAI-NANKING RAILWAY









TYPES OF AMERICAN LOCOMOTIVE COMPANY, IN OPERATION ON CHINESE RAILWAYS

NANKING CITY RAILWAY

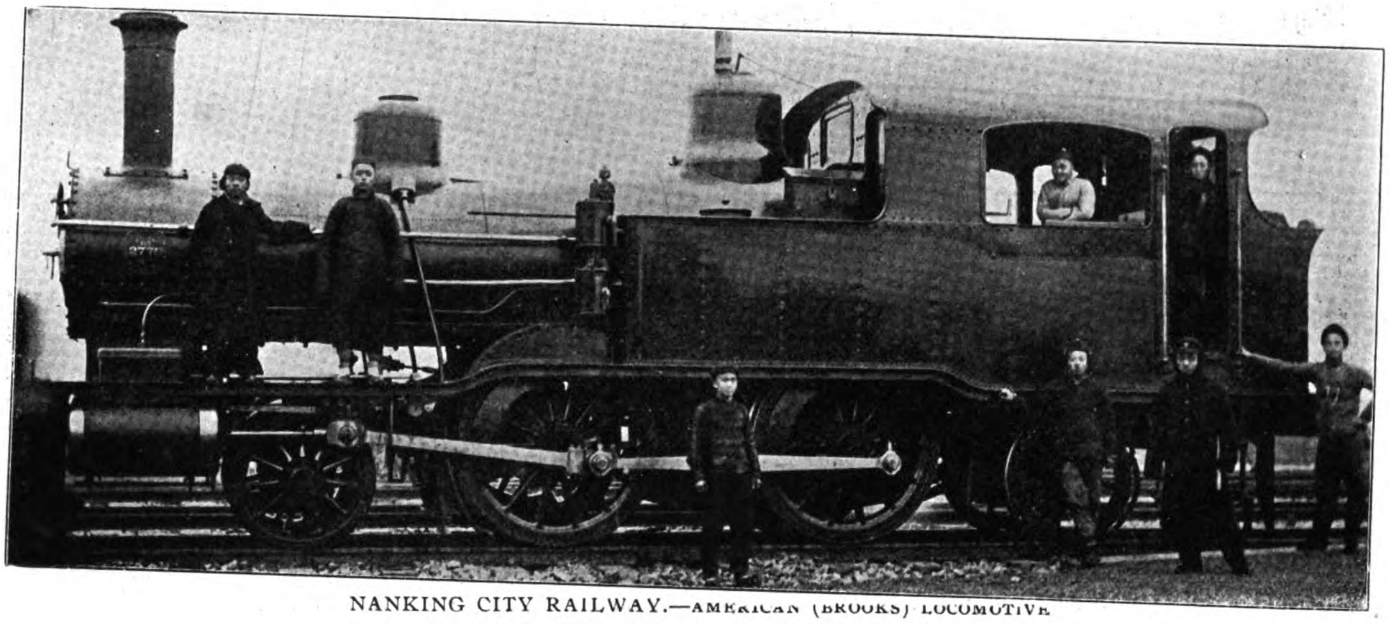
From Terminus of Shanghai-Nanking Railway on the Yangtsze, to Nanking City

This line is a Chinese provincial government concern and is known as the Viceroy's railway from the fact that Viceroy Tuan Fang of the Liang Kiang Provinces built it out of the provincial funds. A section of it, extending from the Drum Tower in the city to the terminus of the Shanghai-Nanking Railway at Hsia Kuan, was opened to traffic on Aug. 26th 1908, and the line was subsequently completed up the Chung Cheng Chieh beyond the Viceroy's Yamen. It has recently been extended over the creek at Hsia Kuan down to within a few yards of the south bank of the Yangtsze where a fine terminal station is being erected its total length being about 7½ miles. The line has been well constructed by a British engineer, Mr. Leeme, and is well managed and may be regarded as an eminently successful undertaking. Its earnings on account of passenger traffic are considerable. The total cost of the line was about Taels 300,000.

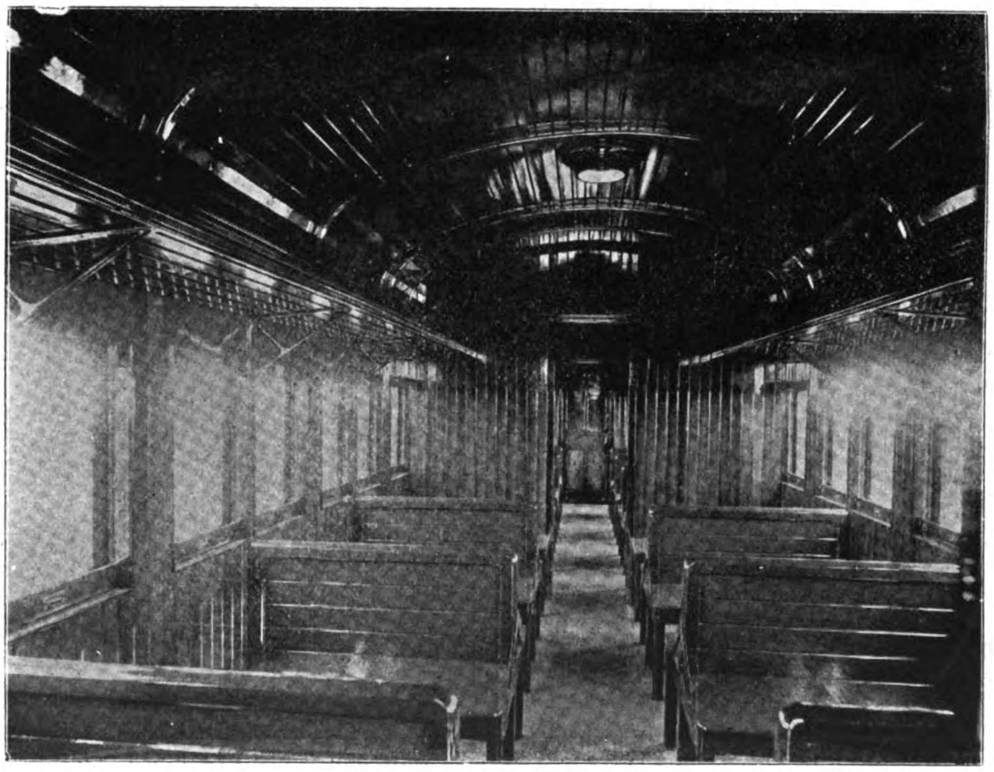
The future prospects of the line while it remains at its present length will depend in the main on the conveyance of passengers. It is true that the difficulty of transport between the business quarter, which is in the southern part of the city, and the river 7 miles away, is obviated by the line and that an expansion of trade might therefore be looked for but it is probable that such expansion would be more likely to result from an extension of the line beyond the city in the south-eastern districts, which produce the chief articles of export, such as silk and various agricultural products. The road is of standard gauge; passenger locomotives being employed to haul a train of six coaches. There are two American locomotives from the Brooks Locomotive Works at Dunkirk, N. Y., U. S. A. The passenger cars were purchased from the Shanghai-Nanking Railway, and were formerly in use on the old Woosung line. They were put together at the Woosung shops of the S. N. Railway. They are fitted with Janney couplers and Westinghouse Air Brakes, with Laycock seats and fittings.

First, second, and third class passenger coaches are in use; and the fares for the whole distance are 60, 30 and 15 cents, Mexican, or approximately 30, 15 and 7½ cents gold; with proportionate reductions for intermediate distances.

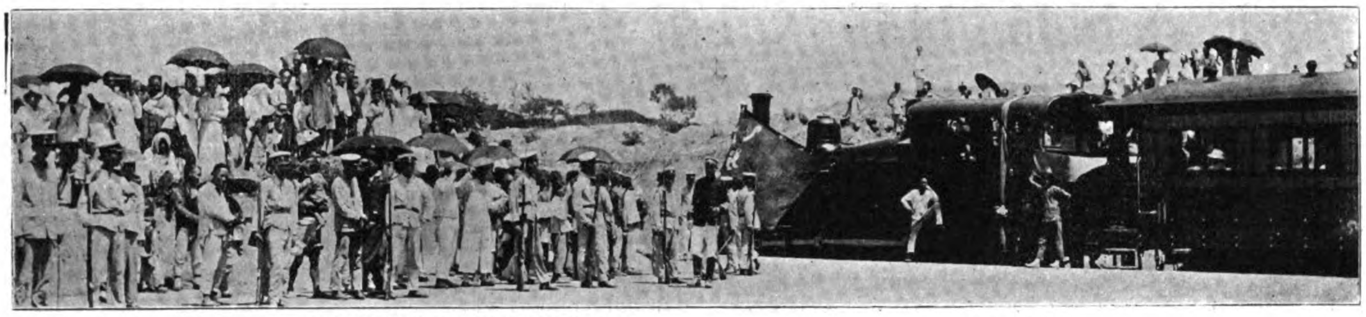
As an evidence of changed conditions in China the two thousand ricksha and carriage coolies, although partially deprived of a means of livelihood, peaceably accept the improved conditions although the local authorities apprehended some hostile demonstration on the opening of the road.



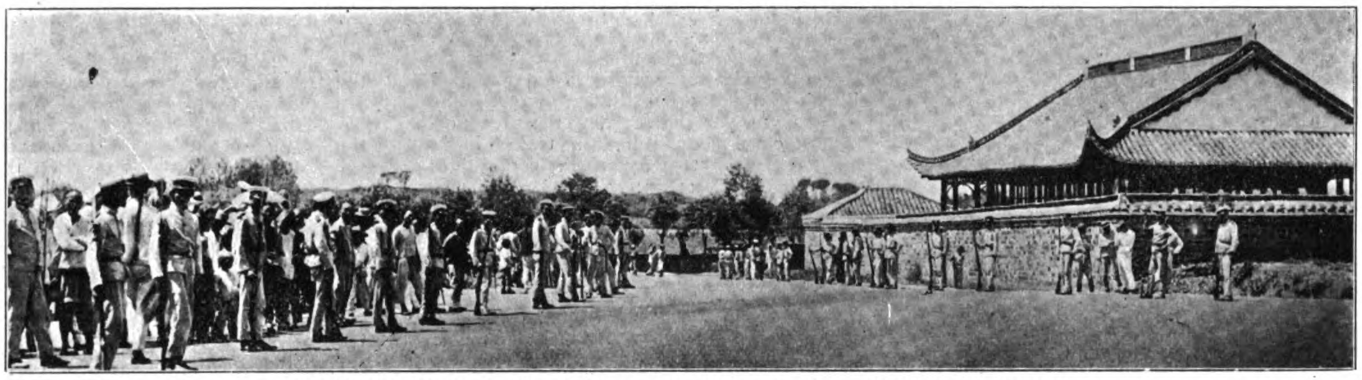
NANKING CITY RAILWAY.—AMERICAN (BROOKS) LOCOMOTIVE



INTERIOR VIEW OF COACH

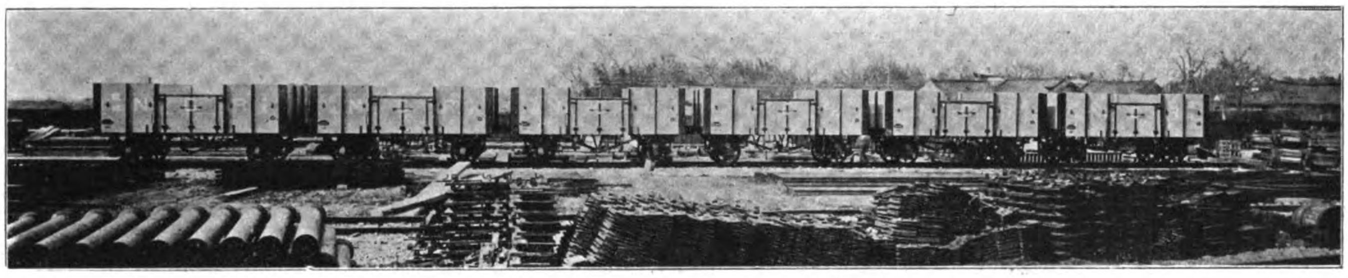


NANKING CITY RAILWAY.—TRAIN AND STATION ON OPENING DAY

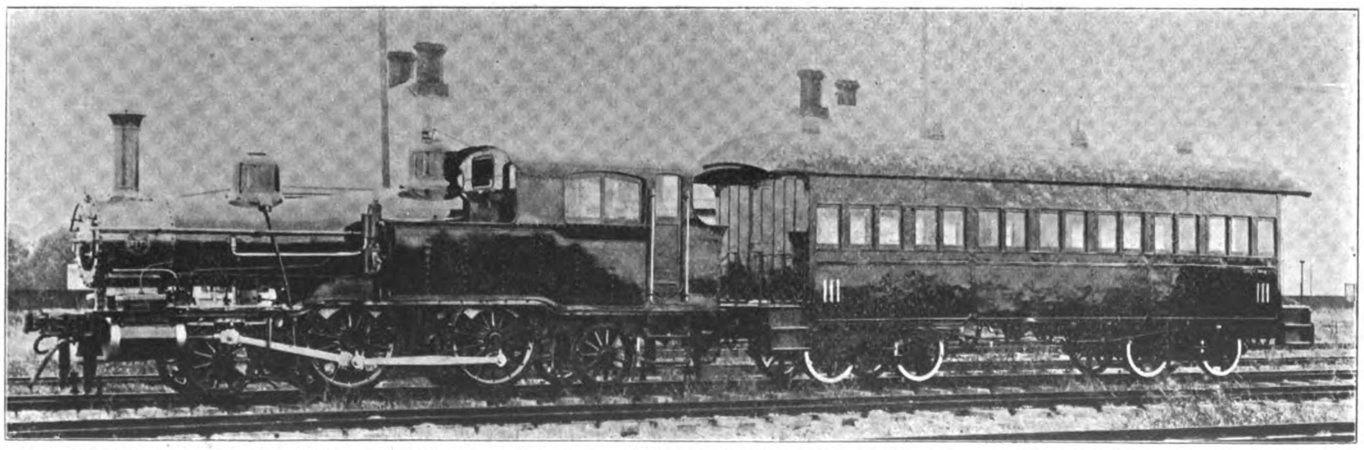


NANKING CITY RAILWAY.—MAIN STATION AND OFFICE AT NANKING

NANKING CITY RAILWAY.—OPENING IN THE CITY WALL FOR THE RAILWAY



NANKING CITY RAILWAY.—TYPE OF HIGH SIDE GOODS WAGONS



NANKING CITY RAILWAY.—AMERICAN BROOKS LOCOMOTIVE AND 3RD CLASS CAR BUILT AT THE WOOSUNG WORKS OF THE SHANGHAI-NANKING RAILWAY

THE TSITSIHAR LIGHT RAILWAY

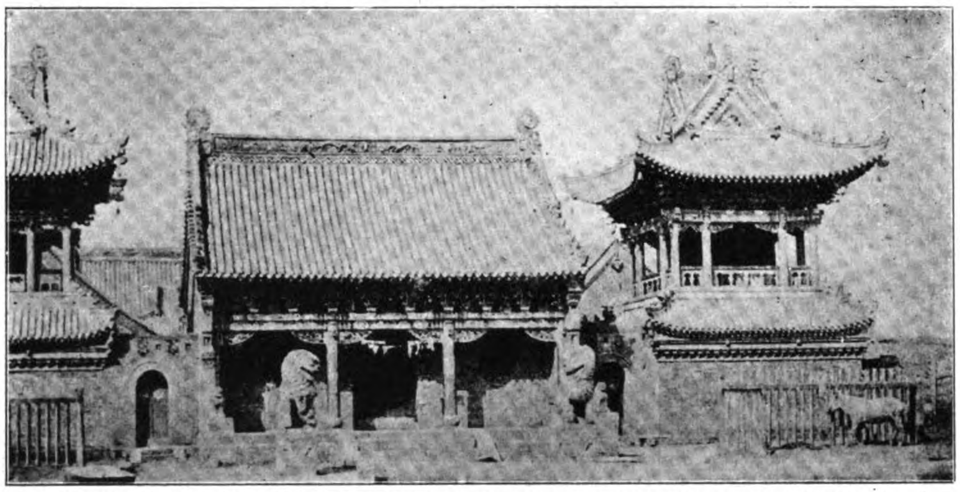
When the Russians constructed the Chinese Eastern Railway through Northern Manchuria, true to their custom, they purposely ran their line several miles from the cities or towns, with the idea of attracting the trade and commerce into the railway zone over which they claimed administrative control.

Tsitsihar, the provincial capital of Heilungkiang Province and the seat of the Governor, is a highly prosperous and important mart, but the Russians regardless of the benefits which might accrue to their line, by coming within a reasonable distance of the town left it 18 miles to the North. Communications between the New Tsitsihar to the old capital was difficult in summer time over the deep muddy roads, and in winter, the bitter northern blizzards were the cause of many deaths by freezing for the unprepared traveller in the 18 mile stretch. In addition, the active Hunghutze bandits did a thriving business holding up and looting travellers over the road. So if the Russian Railway would not come to Tsitsihar, the Chinese would build one for their own convenience, and accordingly the Governor of Heilungkiang entered into a contract with the firm of Telge & Schroeter of Tientsin to construct the road and supply the materials. The road was opened for traffic in August last It is about 18 miles long, of meter gauge, with 30 lb. rails. There are three stations, with appropriate sheds and shops for such a small road.

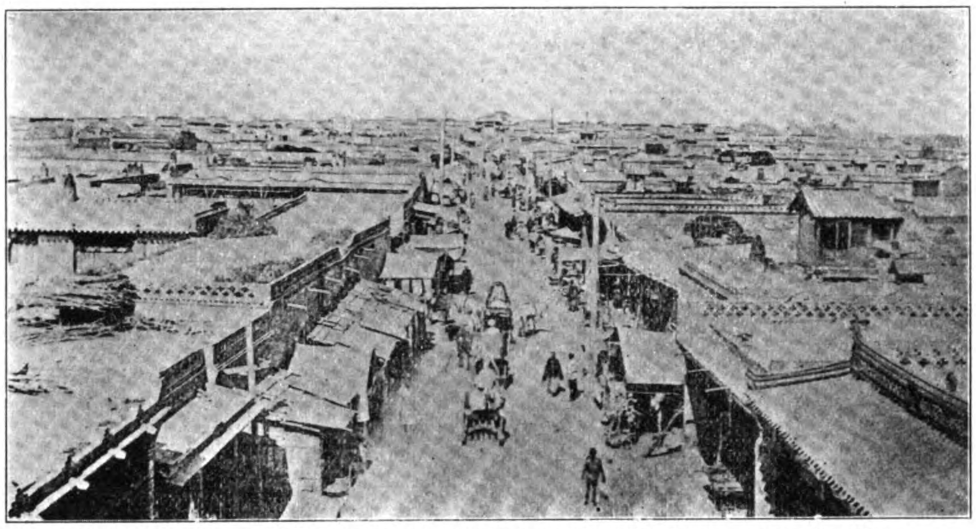
The locomotives are 10 ton engines, 9″ cylinder 12″ stroke, and are rather powerful for their size, being capable of hauling a 100 tons load at a speed of about 17 miles per hour.

The rolling stock consists of freight cars of 6 tons capacity, and of 1st, 2nd, and 3rd class passenger cars. For the personal convenience of the Governor and other high officials an elegantly fitted up saloon car has been provided, a photo of which is attached herewith.

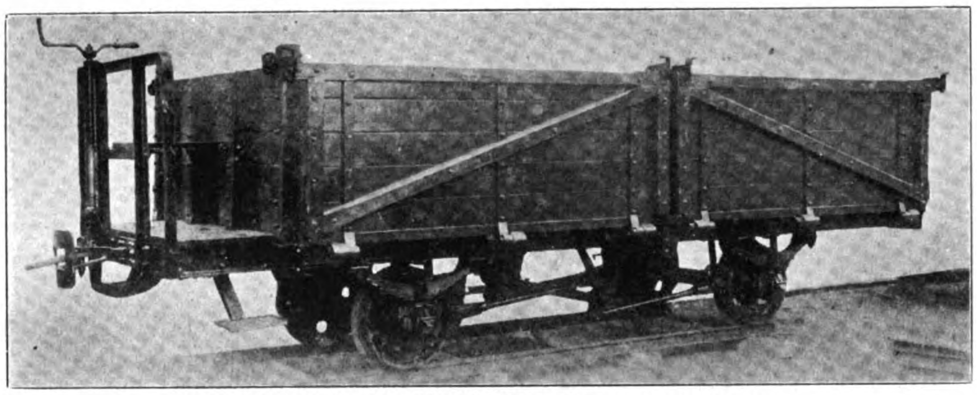
All rails, locomotives and rolling stock have been manufactured by Messrs. Orenstein & Koppel of Berlin, while Messrs. Telge & Schroeter of Tientsin have been the contractors. Mr. W. R. T. Tucky was the engineer in charge.



TSITSIHAR.—THE YAMEN OF THE GOVERNOR OF HEILUNGKIANG PROVINCE



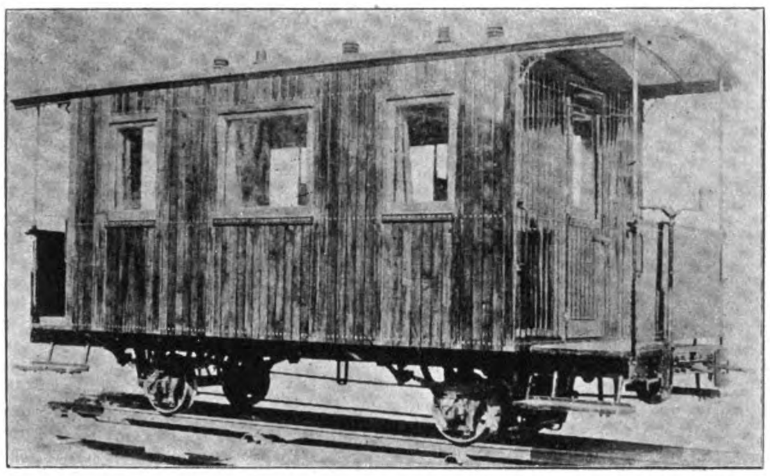
TSITSIHAR.—THE CAPITAL OF HEILUNGKIANG PROVINCE. MAIN STREET



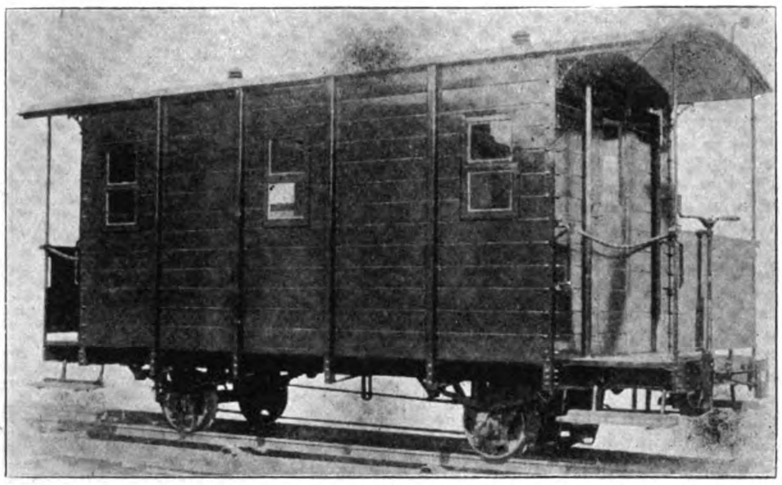
TSITSIHAR LIGHT RAILWAY.—6 TON FREIGHT CAR

HIS EXCELLENCY CHOU SHU-MU,
GOVERNOR OF HEILUNGKIANG PROVINCE
(TSITSIHAR)

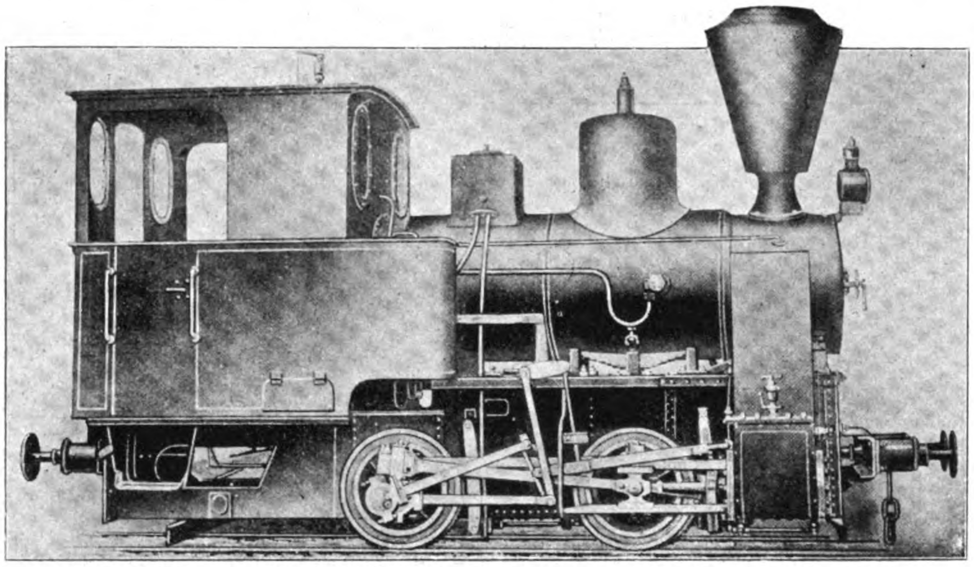
A STATION ON THE C. E. RAILWAY



TSITSIHAR LIGHT RAILWAY.—2ND CLASS PASSENGER CAR



TSITSIHAR LIGHT RAILWAY.—3RD CLASS PASSENGER CAR



TSITSIHAR LIGHT RAILWAY.—ORENSTEIN & KOPPEL LOCOMOTIVE

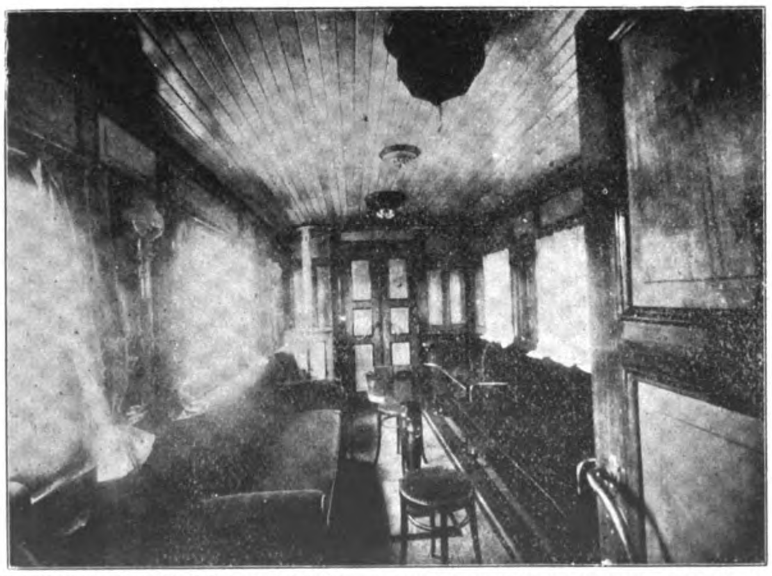
TSITSIHAR-AIGUN RAILWAY

The construction of a road connecting Tsitsihar, the capital of Heilungkiang Province, with the town of Aigun on the Amur River has been advocated from time to time by the Chinese authorities as a military necessity. The Peking Agreement of 1905 which gave to Japan certain preferential railway rights in Manchuria and prohibited China from building a line parallel to, or in the vicinity of the South Manchuria road, made it impossible for China to reach her northern frontiers except by a line through Mongolia.

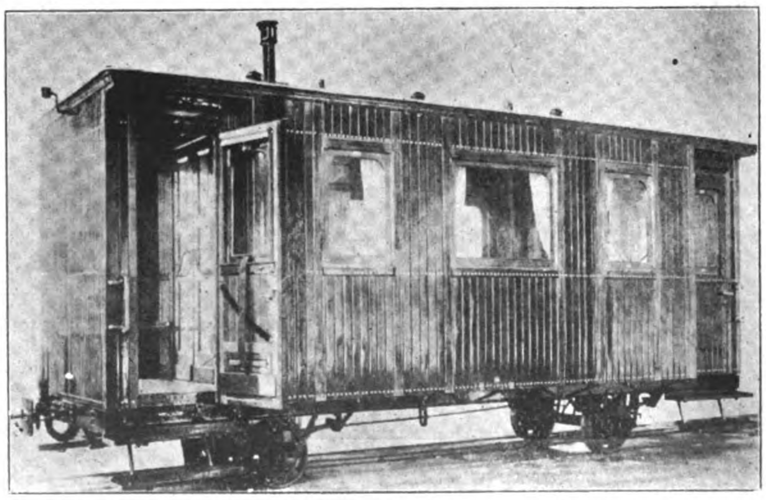
By granting a contract to a British firm for the extension of the Imperial Railways of North China towards Fakumen, China hoped to circumvent the letter of her agreement with Japan, and if this initial step met with no opposition, the road was afterwards to be extended still further northwards, ultimately reaching the provincial capital of Heilungkiang Province at Tsitsihar. A road from this point northwards to Aigun on the Amur River has already been partially surveyed and reported on and in 1907 the Governor of Heilungkiang is reported to have entered into an agreement for its construction, but owing to lack of funds, the only part of the work actually let out to contract was the short 18 mile line from Old Tsitsihar to the main line of the Chinese Eastern Railway. This line has recently been opened to traffic. The proposed railway northwards towards Aigun will be about 245 miles in length. From Tsitsihar it will proceed in a northerly direction and skirt the banks of the Nonni river for a distance of about 100 miles, as far as the important town of Mergen. From Mergen it will branch off to the north east to Aigun via Mono-khe a market town of note. The Governor of Heilungkiang promised to complete the line within four years and despatched a number of officials to commence operations and attend to the survey work.

The line, although confined to the fairly level stretches of the Nonni Valley, will not be without several engineering difficulties. About 25 tunnels of various lengths have to be pierced Between Mergen and Aigun the line will run alongside the existing Chinese highway.

The Tsitsihar Aigun line is expected to prove of great commercial utility. It will bring Southern Heilungkiang and also Kirin province in direct communication with Blagovostchensk on the Amur and other important Russian towns situated on this river. It will increase commercial activity and serve as a connecting link between the Chinese Eastern railway line and the Amur river steamship lines.



TSITSIHAR LIGHT RAILWAY.—SALOON CAR FOR THE GOVERNOR OF HEILUNGKIANG



TSITSIHAR LIGHT RAILWAY.—EXTERIOR OF SALOON CAR

THE SHANTUNG RAILWAY

The lease of Kiaochow by Germany in 1898 for 99 years was the outcome of the murder of two German missionaries in the province of Shantung in 1897. The commander of the German squadron took possession and a demand made on the Peking government for the punishment of the governor of Shantung, an indemnity to the families of the victims and an amount to reimburse Germany for the cost of occupation, besides securing a preference for Germon railway enterprise in that province. These demands were practically acceded to and with the signing of the lease a railway convention was concluded which follows:

I.—The Chinese Government sanctions the construction by Germany of two lines of railway in Shantung. The first will run from Kiaochow and Tsinan-fu to the boundary of Shantung province, *via* Wei-hsien, Tsinchow, Pashan, Tsechuen and Suiping. The second line will connect Kiaochow with Chinchow, whence an extension will be constructed to Tsinan through Laiwuhsien. The construction of this extension shall not be begun until the first part of the line, the main line, is completed, in order to give the Chinese an opportunity of connecting this line in the most advantageous manner with their own railway system. What places the line from Tsinan-fu to the provincial boundary shall take in *en route* is to be determined hereafter.

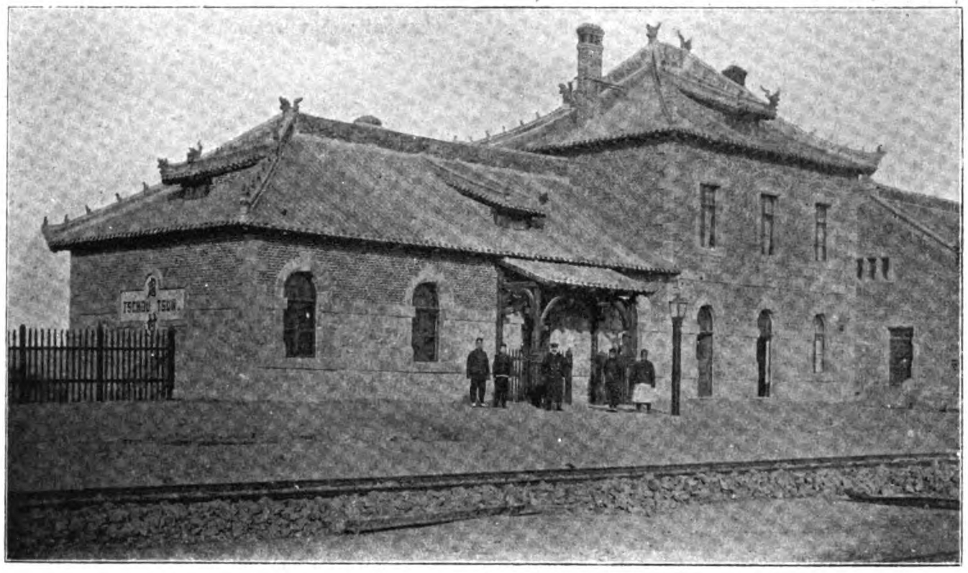
II.—In order to carry out the above mentioned railway work a Chino-German Company shall be formed, with branches at whatever places may be necessary, and in this Company both German and Chinese subjects shall be at liberty to invest money if they so choose, and appoint directors for the management of the undertaking.

III.—All arrangements in connection with the works specified shall be determined by a future conference of German and Chinese representatives. The Chinese Government shall afford every facility and protection and extend every welcome to representatives of the German Railway Company operating in Chinese territory. Profits derived from the working of these railways shall be justly divided *pro rata* between the shareholders without regard to nationality. The object of constructing these lines is solely the development of commerce. In inaugurating a railway system in Shantung Germany entertains no treacherous intention towards China, and undertakes not to unlawfully seize any land in the province.

IV.—The Chinese Government shall allow German subjects to hold and develop mining property for a distance of 30 li from each side of these railways and along the whole extent of the lines. The following places where mining operations may be carried on are particularly specified along the northern railway from Kiaochow to Tsinan, Weihsien, Pa-shan-hsien and various other points; and along the Southern Kiaochow-Tsinan-Chinchow line, Chinchow-fu, Luiwuhsien, etc Chinese capital may be invested in these operations and arrangements for carrying on the work shall hereafter be made by a joint conference of Chinese and German representatives. All German subjects engaged in such works in Chinese territory shall be properly protected and welcomed by the Chinese authorities and all profits derived shall be fairly divided between Chinese and German shareholders according to the extent of the interest they hold in the undertakings. In trying to develop mining property in China, Germany is actuated by no treacherous motives against this country, but seeks alone to increase commerce and improve the relations between the two countries.

If at any time the Chinese should form schemes for the development of Shantung, for the execution of which it is necessary to obtain foreign capital, the Chinese Government, or whatever Chinese may be interested in such schemes, shall, in the first instance, apply to German capitalists. Application shall also be made to German manufacturers for the necessary machinery and materials before the manufacturers of any other Power are

SHANTUNG RAILWAY —TERMINAL AT TSINGTAO



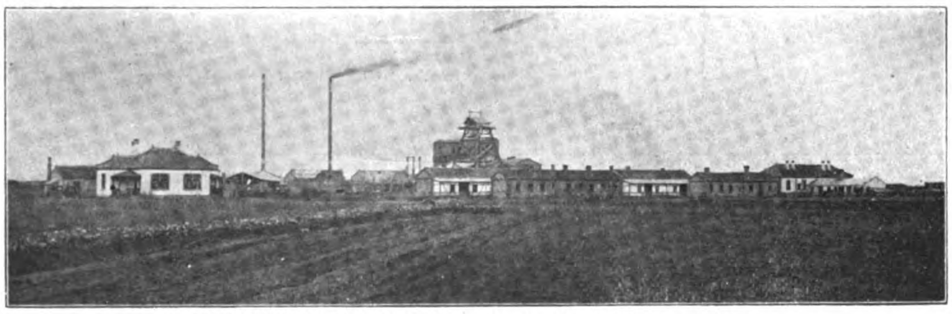
SHANTUNG RAILWAY.—TSCHOU-TSUN STATION

SHANTUNG RAILWAY.—LANTSUN STATION

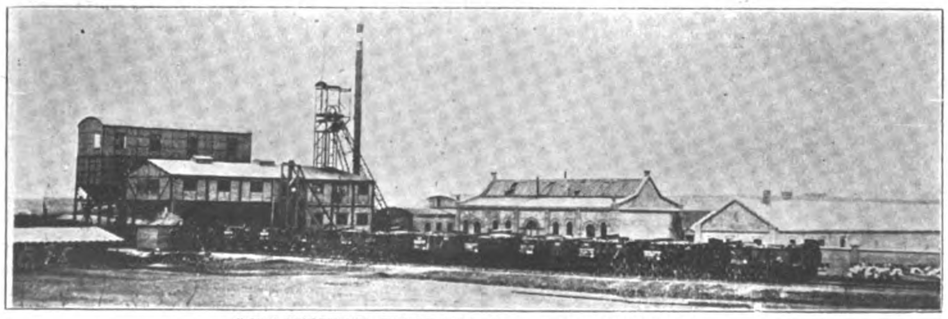
SHANTUNG RAILWAY.—CHING-CHOW FU STATION

SHANTUNG RAILWAY.—TSCHENG-YANG STATION

SHANTUNG RAILWAY.—LIKOTSCHUANG STATION



SHANTUNG RAILWAY.—COAL MINE AT FANG-TSE



SHANTUNG RAILWAY.—FANG-TSE MINES

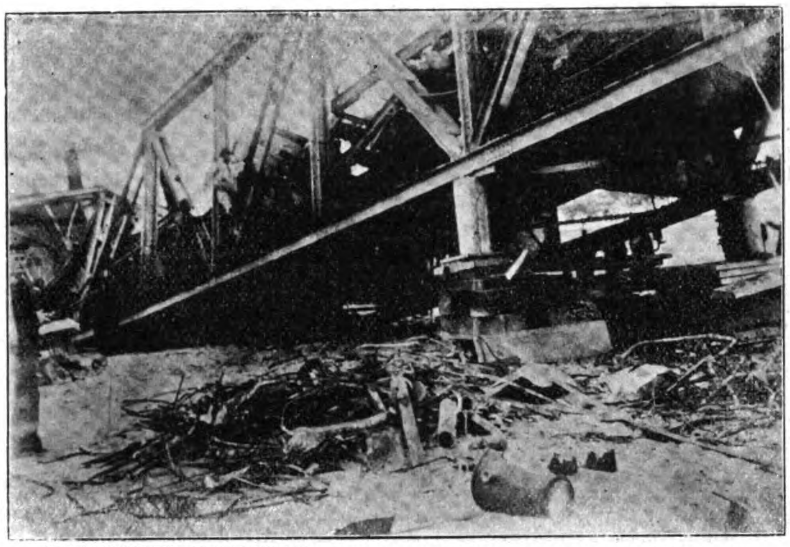
approached. Should German capitalists or manufacturers decline to take up the business the Chinese shall then be at liberty to obtain money and materials from sources of other nationality than German.

Then followed the development by the German government of the port of Kiaochow for which 8,500,000 marks were appropriated by the Reichstag. A company to be known as the Schantung Eisenbahn Gesellschaft was organized at Berlin with a capital of 54,000,000 marks. By its concession the Syndicate was to build a line from Tsingtau to Kiaochow and from the latter point by way of Weihsien to Chinanfu together with a branch to Poshan, within a period of five years. In addition the Syndicate was given an option to construct a line from Kiaochow to Ichowfu and another connecting Chinanfu and Ichowfu. In consideration of this concession the Syndicate agreed to turn over to the German government a part of the surplus profits after paying a dividend of 5%. The construction of the main line was completed in 1904, a distance in all of 240 miles. The branch to Poshun is 34 miles in length, making, in all, 274 miles approximately. The proposed line between Ichowfu and Chinanfu was abandoned in favor of the Anglo-German Syndicate in connection with the construction of the Tientsin-Pukow line. The Kiaochow-Ichowfu line was surveyed but further work was abandoned. The cost of the line was approximately $47,500 gold a mile. The editor of the *London and China Express* who visited Shantung in 1907 makes the following interesting report:

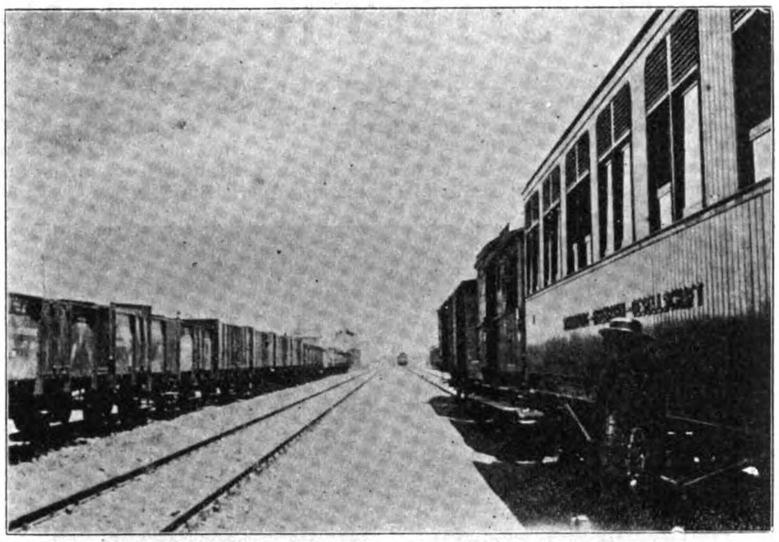
"The Schantung Eisenbahn Gesellschaft runs between Tsingtau and Tsinan-fu, the capital of the province, and it has a branch line to Poshan for the mines there. The main line is 412 kilometers long. It is standard gauge and laid on iron sleepers. Moderate weight rails are employed, and at present no fast speeds are attempted. The journey in fact takes 13 hours, of which nearly three hours were stoppages. Some acceleration of the service is to take place this autumn. Certainly what seemed to strike one at present was the unnecessarily long halts that occurred at some of the stations, and again the large number of stations. Other railways in China have greater distances as a rule between the stopping places, and one wondered whether all the stations could pay. A reference to the last issued report showed, however, that each was contributing a net revenue, so that their comparative frequency is justified. The stations are good, useful buildings, without ostentation, and adapted to the purposes for which they are designed. The bridge work over the many shallow rivers and streams, which in the rainy season often become raging torrents for a short time, is fairly solid, and the roadbed in good order, certainly for the speeds at which we progressed. According to the last available figures, those for 1906, the stock comprised 30 locomotives, 107 passenger and baggage wagons, including three postal cars, and 720 freight cars. The latter include some fine covered vans for the transport of strawbraid, specially constructed so as to take 15 tons of measurement braid."

The Shantung Railway Company reported that in 1905 the traffic showed a sufficient development, while in 1904 there was an average weekly traffic of 10,748 passengers and 4,695 tons of goods, for 1905 there were 15,452 passengers and 5,971 tons of goods. In 1905 the total traffic amounted to 803,527 passengers (558,868 in 1904) and to 310,482 tons (179,270). Among the goods coal takes the first place with 158,115 tons in 1905 and 68,921 tons in 1904. Also it may be mentioned that of agricultural produce from the interior, and as beans, oil, cotton, earthenware, straw plaitings, etc., continually larger quantities are transported. The financial result showed an income of 1,912,296 Mex. dollars, against 1,246,047 Mex. dollars for 1904. After writing off m.50,000 on stocks, and after giving m.300,000 to renewal purposes there remained a net profit of m.2,063,572, out of which m.103,179 were applied to special reserve, while m.1,755,000 was distributed as a dividend of 3¼ per cent. on the paid-up share capital of m.54,000,000.

In 1906 there were carried 846,000 passengers, against a little over 800,000 in 1905, and 381,000 tons of goods, against 310,000 tons the year



SHANTUNG RAILWAY.—ACCIDENT AND COLLAPSE OF BRIDGE



SHANTUNG RAILWAY.—TSINGTAU TRAIN YARD

before. The coal transported was 208,000 tons. The distribution of petroleum amounted to 10,000 tons a year. The passengers travelled on an average 70 kilometers in 1906, against 68 in 1905, and the goods haulage was 179 kilometres, being the same as for 1905. The receipts in 1906 were $2,169,000, against $1,912,000 in 1905. This meant $4,970 per kilometre, against $4,382 in 1905. The expenses per kilometre in 1906 were $2,089. The passenger fares, generally speaking, are moderate in amount. The surplus, aided by a higher exchange, came to m.2,642,000, and after passing 5 per cent. to reserve and 5 per cent. to special reserve a dividend of 4¼ per cent. was paid on the capital of m.54,000,000. The staff in Shantung comprises 57 Europeans and 424 Chinese. The company has a complete range of workshops at Sypang close to Tsingtau, where all repairs to stock and other material can be carried out, as well as construction work up to a certain point. The company houses its employees here, and the workmen's dwellings are a model of what should be done for Chinese in this way."

The longitudinal section of the road shows that the main line is made up of forty-two per cent. level, twenty-nine per cent. rise, and twenty-nine per cent. fall, with a maximum grade of six per cent. The permanent way has been constructed to sustain ordinary traffic at a speed not exceeding 37.5 miles per hour.

The survey covered an area of a strip of land varying in breadth between 500 and 2,000 yards, and cost about £36 per mile, being completed at the rate of ten miles per month. The land was expropriated in accordance with Chinese law, 1*s*. 1*d*. being paid per square yard, with a surcharge of eight per cent. for land in crop and near the townships. The earthwork was sublet in contracts of six miles in length, and was paid for at schedule prices, 1*s*. 4*d*. per cubic yard for ordinary earthwork, and 10*d*. per cubic yard for rock. All bridges and culverts were standardized, as well as the wooden and steel scaffoldings used for erection.

The railway was five years in construction and cost:—

	£
Land	89,700
Earthwork	148,000
Level crossings and fencings	2,700
Bridges and culverts	728,000
Permanent way	759,000
Signals, blockhouses, etc.	13,200
Stations	106,000
Repairing-shops, etc.	85,000
Materials (coals, etc.)	310,000
Administrative expenses	203,000
Interest on capital, etc.	200,000
Total	£2,644,600

or, including interest on capital, about £9,200 per mile.

The Report of the Company for 1908 shows the following returns:—

The receipts increased from Mex. $2,355,696 (U. S. $958,768) in 1907 to Mex. $2,599,940 (U. S. $1,058,176) i.e. 10.37%, while the expenditure decreased from Mex. $822,703 (U. S. $331,657) in 1907 to Mex. $799,652 (U. S. $325,458). The profits increased from Mex. $1,532,993 in 1907 to $1,800,287 i.e. 17.44% (U. S. $623,928 and $732,717).

The average exchange for Mex. $100 equal Mk. 213.78 (U. S. $50.88) decreased to Mk. 178.07 in 1908 (U. S. $42.38), that is 16.8%; so in remitting the money to Germany there was a loss in exchange of Mk. 642,883 (U. S. $153,004), so that the profit in Marks does not reach last year's total. A dividend of 4¾% was declared.

November 23, 1908, a mixed train was derailed on the Peishaho bridge through breaking of an axle, in consequence of which 8 persons were severely injured; a bridge culvert was destroyed and four cars were burned. The incurred expenditure amount to Mk. 110,000 (U. S. $26,180). All relations between Chinese and Officials were satisfactory.

The establishment of buildings along the road at places without hotel accommodations proved to be needed, and is greatly appreciated by inland travellers. Six new buildings for employees were built along the road.

Afforestations on both sides of the road has been commenced. Acacias and elders have been principally used.

The rolling stock has been increased by 2 locomotives, 6 baggage cars, 10 covered freight cars, 20 coal cars and 3 tank cars; through the accident at the Peishaho bridge four cars were lost.

The rolling stock all told at the end of the year consisted of: 35 locomotives, (17 double engines, 4 tender engines, 7 freight engines, 4 reserve engines) in all 0.0733 piece per kilometer. 109 passenger and baggage cars: (19 passenger cars I-II class, 17 cars II class, 59 cars III class, amongst the latter are 24 for small freight, and two dining cars. Twelve baggage cars, 7 mail cars, 1 service car and 1 parlor car) in all 0.250 pieces per kilometer. 793 freight and service cars (180 covered cars, 460 coal cars, 25 coke cars, 5 double bottom cattle cars, 10 lime cars, 100 platform cars, 8 tank cars, 3 crane cars, 2 tool cars. In all 1.817 pieces per kilometer. The locomotives are all of German type weighing from 33 to 100 tons. The weight of freight cars empty is from 7 to 20 tons, loaded from 22 to 35 tons.

There run 14 mixed trains daily and extra freight trains if necessary. Besides, since September 15, one fast train has been run daily, in each direction between Tsingtao and Tsinanfu-West, stopping at the main station only.

The principal articles of freight in carloads were: Hard coal, brickets and coke 258,978 tons, beans 37,745 tons, assorted goods 30,835 tons, metals, metal goods, machinery, etc., 18,286 tons, wood and wooden articles 17,793 tons, kerosene 17,784 tons, salt 13,629 tons, cotton, raw and spun 10,346 tons, grain 8,241 tons, fruit and nuts 7,714 tons, paper 6,328 tons, sorghum 6,177 tons, sugar 6,125 tons, crockery ware 5,155 tons, strawbraid and rush matting 4,919 tons, oil 3,784 tons, lime 2,534 tons, matches, 2,525 tons, brooms 2,195 tons, vegetables and trees 2,073 tons, rice 1,598 tons, stones 1,295 tons, cement 1120 tons and tar 1,050 tons.

Less than 1,000 tons and above 100 tons were transported: Indigo, glass, cocoons, cash, oil cake, tobacco, soda, silk, straw, bones, flowers and plants, fish, skins and pelts.

Animals were transported:

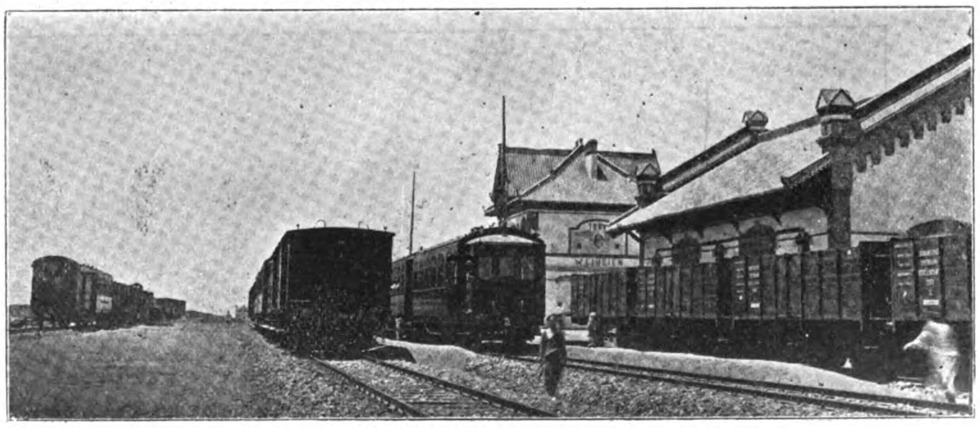
19,428 head of large animals against 26,214 in 1907.

20,136 head of small animals against 7,595 in 1907.

Of the larger animals there were:

13,367 head oxen, 5,001 donkeys, 670 mules, 390 horses; and of the small animals: pigs 18,650, sheep 954, calves 532.

The financial results show total receipts of Mex. $2,614,078.58 against $2,359,185.42 (U. S. $1,064,929.98) $960,188.46 an increase of 10.80% against the previous year.



SHANTUNG RAILWAY.—WEIHSIEN STATION

THE SOUTH MANCHURIA RAILWAY

The South Manchuria Railway between Kuangchengtzu, Dalny, and Port Arthur was transferred to the Japanese Government by Russia at the close of the Russo-Japanese War. The organization of a company to operate this line was authorized by an Imperial Ordinance issued by the Emperor of Japan, and in pursuance of the provisions thereof the Organization Committee held its first meeting on the 10th of August, 1906.

It was decided that the head offices of the Company should be located at Tokyo, with a branch office at Dalny, that the Company should be capitalized at Yen 200,000,000, the Government to receive Yen 100,000,000 in shares for

(1) Railways already constructed (excluding the rolling stock now in use, rails of the Mukden Antung-hsien light railway and accessories).

(2) All property accessory to the above railways (excluding the property in the Leased Territory which should be specially designated by the Government).

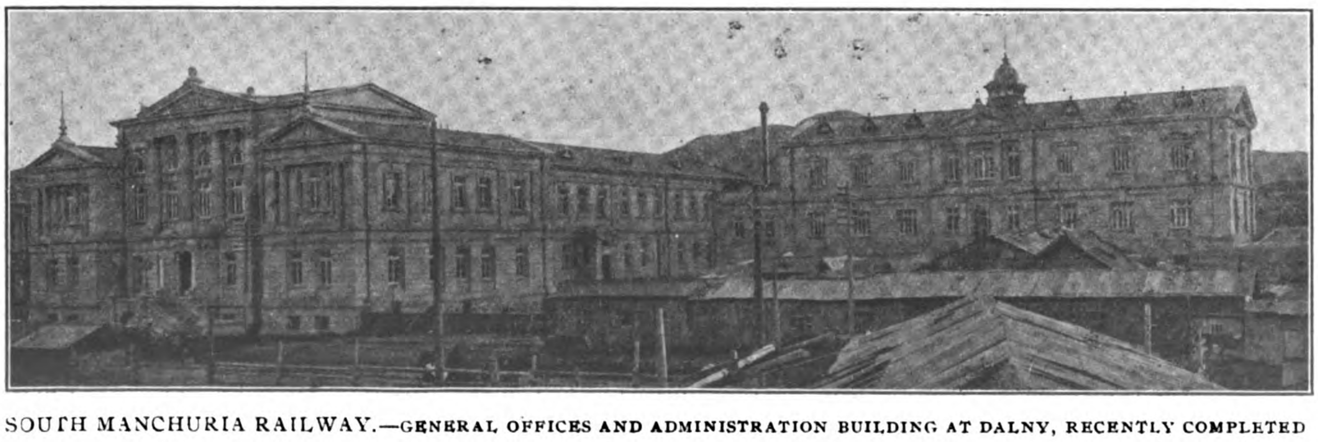
(3) Coal mines at Fushun and Yentai.

It was also provided that interest, guaranteed by the Government, is to be paid at the rate of 6% per annum on the paid up capital of the Company for fifteen years after the registration of its organization and that the subsidy shall in no case exceed 6% of the paid up capital, that the subsidy with an interest of 6% shall be made a liability of the Company to the Government, repayable with the excess of the Company's dividends above 10% per annum on all shares.

There were, when subscriptions were called for in the autumn of 1906, 11,467 applicants for 106,643,418 shares. Of these all applications for less than ten shares were rejected, leaving 11,356 applicants for 106,643,016 shares or 106,544,016 shares in excess of the 99,000

HIS EXCELLENCY BARON S. GOTO
MINISTER OF COMMUNICATIONS OF THE IMPERIAL JAPANESE GOVERNMENT. AS FIRST PRESIDENT OF THE SOUTH MANCHURIA RAILWAY COMPANY, HE REBUILT AND REORGANIZED THE ROAD, BRINGING IT UP TO ITS PRESENT HIGH STATE OF EFFICIENCY

MR. Z. NAKAMURA,
PRESIDENT OF THE SOUTH MANCHURIA RAILWAY COMPANY



SOUTH MANCHURIA RAILWAY.—GENERAL OFFICES AND ADMINISTRATION BUILDING AT DALNY, RECENTLY COMPLETED

to be allotted, the apportionment being as follows:—

	Shares.
Apportioned by calculation..........	94,333
Apportioned by lot..................	4,667
Directors' shares, reserved...........	1,000
Total...........................	100,000

The Government's portion, Yen 100,000,000, was regarded as paid up, and the actual subscribed capital of the company is now Yen 120,000,000.

Although it was provided that the South Manchuria Railway should be a Chinese-Japanese organization, the Chinese failed to avail themselves of the opportunity to purchase shares and protested against the organization of the Railway on the grounds that the Articles of Association were inconsistent with the terms of the Peking Treaty signed in December 1905, and claimed that Japan had included in the list of "property" of the South Manchuria Railway Company certain branch lines and collieries, notably the Yentai and Fushun Mines, which they claimed, although a certain amount of Russian capital was used in their operation, were Chinese private property.

Administration.—In view of the varied functions delegated to the Railway Administration as well as the intimate association of this organization with the Japanese Government, the political significance of its policy, and the extent to which its control of the communications of southern Manchuria may affect the commercial development of this region, can scarcely be overestimated.

The Railway Company is empowered to:—

(1) Engage in the following business for the benefit of the Railway:

(a) Mining, especially the working of the Yentai and Fushun collieries.

(b) Marine transport.

(c) Electric works.

(d) Sale on consignment of the principal goods carried by rail.

(e) Warehousing business.

(f) Construction and administration of land and houses on the land belonging to the railway.

(2) Make the necessary provisions for education, health, and engineering work within the limit of the land belonging to the railway.

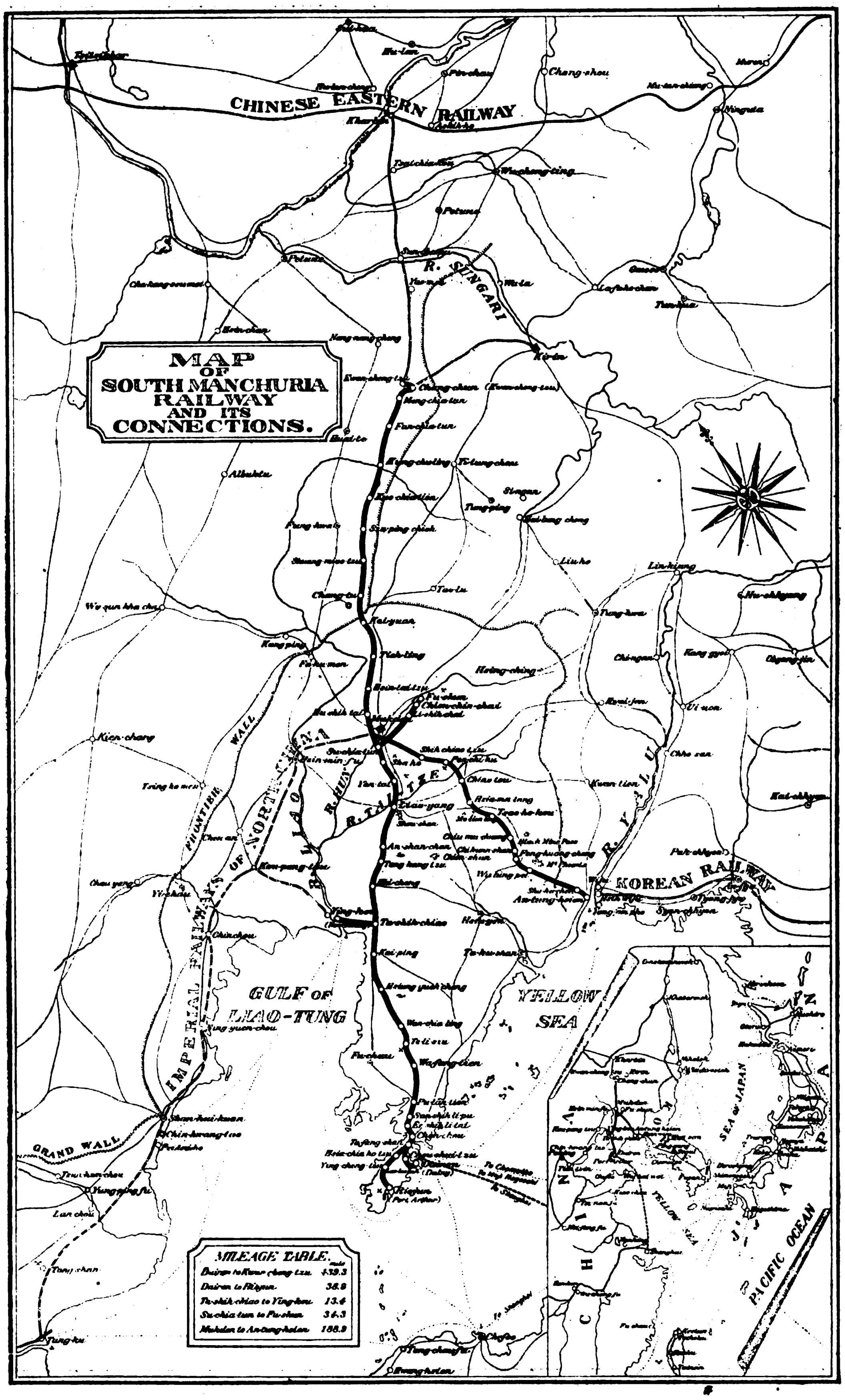
(3) Collect fees from the inhabitants within the limit of land belonging to the railway to defray expense of above.

The establishment of a Japanese settlement at Newchwang in an area not as at Liaoyang, Mukden, and Tiehling, acquired from the Russians, but purchased from the natives, with an administration formerly controlled by the Military Governor of the Leased Territory, was perhaps the first instance of the application of the powers conferred in (2) and (3). If the tracts varying from one thousand to two thousand three hundred acres at the above mentioned cities had been put to a similar use, the Railway Company would have assumed the dignity of a Colonial Administrator, and this circumstance drew on the Japanese much adverse comment.

The Railway is protected by a force of approximately fifteen thousand men stationed at different points along the main and branch lines, and quartered not only in barracks near the stations, but within the neighboring cities as well.

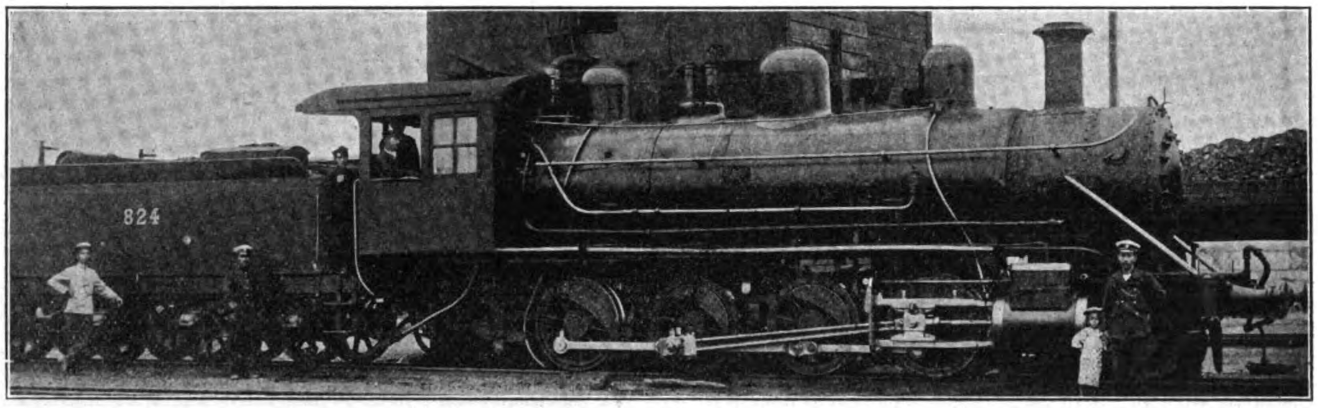
The policing of the Railway is under the supervision of the Governor General of the Leased Territory who has charge also of an elaborate postal and telegraph system. The Manchurian Consular Courts have civil jurisdiction in the Railway Settlements.

The President of the South Manchuria Railway Company receives Yen 50,000 per annum, the Vice-President 30,000, the six Directors 12,000 each (six thousand salary and six thousand allowances), the Chief Secretary 10,000, and five overseers 1,000 each. At first the total number of officials and Japanese employees was 7,860, giving an average of approximately eleven per mile, and the monthly pay roll amounted to Yen 281,552.35. This force has since been greatly reduced, and the road is now being run on strict business and economical lines. At present nearly all the construction work is being carried on by Chinese, as the Japanese laborer can not compete with him.



Equipment.—The military authorities, formerly in control of the Railway, declined to furnish information regarding the rolling stock on the line. Notwithstanding the demand for shipping facilities and the stagnation of freight at Tiehling and other northern points, numbers of cars were returned to Japan, and Japanese as well as foreigners and Chinese complained that the Administration, in its haste to reduce the rental paid to the Railway Companies in Japan for the use of their carriages, sacrificed large profits and seriously interfered with trade. Until steps were taken to widen the gauge and new rolling stock imported, there was no amelioration of these conditions.

Seventy box and open freight cars and second and third class passenger cars were all that were in use at one time, while the company was at work standardizing the line and awaiting new equipment from America. It was during this period that the criticisms of discrimination were most severe and many complaints found their way into print without any serious effort being made to analyze the underlying causes.



TYPE OF NARROW GAUGE AMERICAN LOCOMOTIVE IN USE ON S. M. RAILWAY BEFORE CONVERSION TO STANDARD GAUGE

While there was enough ground for some criticism, yet it is unfair to attack an enterprise for incompetency while it is striving to get on its feet.

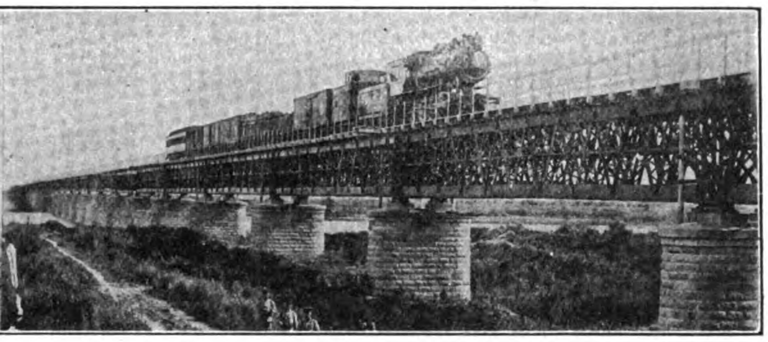
There are four repair shops at Dalny, one at Liaoyang, three at Kuangchengtzu, and one at Port Arthur.

There are 781 railway buildings, including watch sheds, etc. Practically the only substantial buildings were constructed by the Russians and for a long time were in bad condition, and the repairs attempted by the Japanese were of the most temporary character. Tile roofs damaged by shell fire were roughly patched or where the original covering was wholly destroyed galvanized iron was substituted. Structures that were gutted by fire were lined with a wooden shell eight or nine feet high. Windows were boarded or the broken panes covered with paper and months of rough usage and careless treatment did not improve the condition of buildings which the Russians attempted to destroy as they retreated toward the north.

Here again the critic found fault with the administration, but the stations have since been made as comfortable as possible, and new edifices are going up at the most important places. The railway has confined its energies first to improving the track and rolling stock, so that they could handle the traffic, which would make new stations possible.

There are at the present time 254 permanent and 24 temporary bridges. The former are of no particular size north of Mukden. As the Russians dynamited most of the larger structures between Mukden and Ssuoingkai they must necessarily be rebuilt.

FREIGHT CARS ON THE SOUTH MANCHURIA RAILWAY



BRIDGE OVER THE HUN HO

The old roadbed was well laid and the embankments in good condition. Sixty-five pound rails were used and the ties are still serviceable.

It was stated that three years would be required to widen the gauge, from 3′ 6″ to 4′ 8½″. This has been completed in half the time, and the company is at present double tracking the work from Dalny to Suchiatun to handle coal output of Fushun.

Operation.—The area traversed by the South Manchuria Railway is one of the richest agriculturally in the world, populated by a hard working and thrifty people who as pioneers and settlers are more open-minded than their fellow countrymen in China proper. Each year brings thousands of immigrants from the provinces of Chihli and Shantung, and this human tide is gradually flooding the heretofore uncultivated plain of Heilungchiang and Mongolia, penetrating the forest-clad hills along the Yalu and peopling the valleys in the mountains that rise to the east of the great Liao Plain.

There are a number of prosperous cities, each having served as a market and distributing center for the country in its immediate vicinity, located at intervals of between thirty-five and forty miles, along the railroad between Newchwang and Changchun.

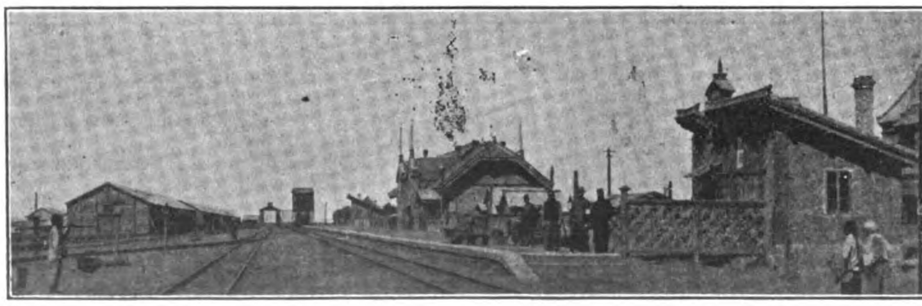
Tungchiangtzu and Fakumen, the former on the banks and the latter not far from the Liao River, and Tiehling which is on the river and railway as well, have been the great centers of the bean trade. Thousands of carts each winter brought their loads to these points for storage and shipment south when the river opened in the spring. Mukden has been the principal fur market and Changchun (Kuangchengtzu) the great distributing center for northern Manchuria and Mongolia.

Ordinary goods were charged 5 sen per ton per mile between Tashihchiao and the north, and between that place and Newchwang, while the same articles may be carried between Tashihchiao and Dalny for two sen per ton per mile. There are no positive proofs that preferential rates have ever been granted Japanese merchants, but there are indications that they have received privileges not accorded Chinese and foreigners, and the discrimination in favor of Dalny, at which place under the old military administration it was practically impossible for a foreigner to engage in trade, has in itself been the cause of much complaint on the part of the foreign merchants of Newchwang.

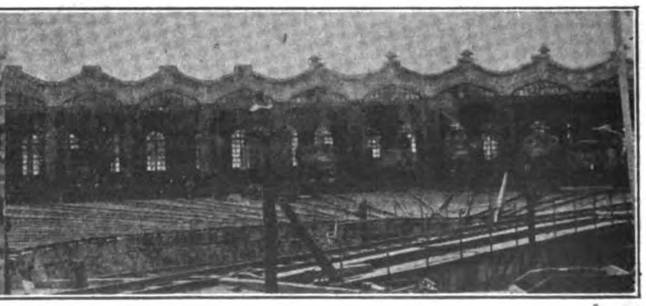
It has been stated that no single line of Railway can carry the annual Manchurian bean crop to the seaboard, nor can the South Manchuria Railway Company ever be able to furnish adequate transportation facilities. There was in fact, at one time, so much dissatisfaction with the management of the line and the delays of freight in transit that a number of shipments were made from and to Newchwang by cart for not only is the cost of transportation slightly less but delivery may be expected within a certain definite time.

This condition can not be urged as an argument against the road at present, for, with the new equipment, every effort is being made to cater to foreign shippers at Newchwang, and at the same time handle the numerous freight from the north.

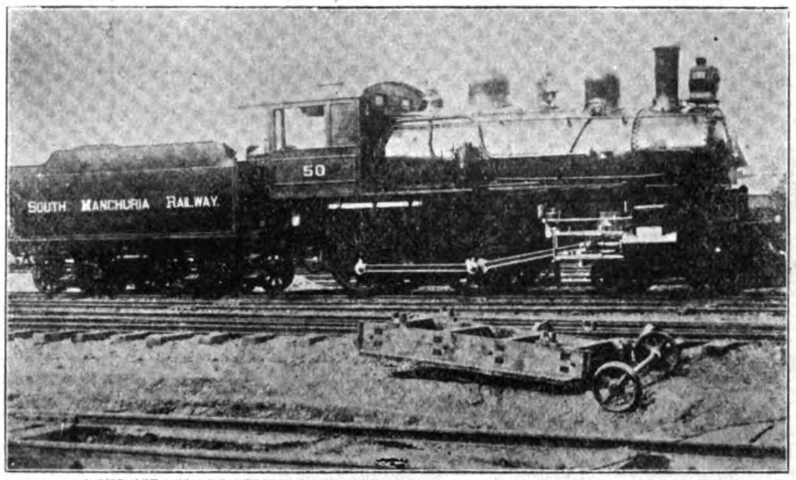
The Antung-Mukden line does not pay running expenses at the present time, but it is



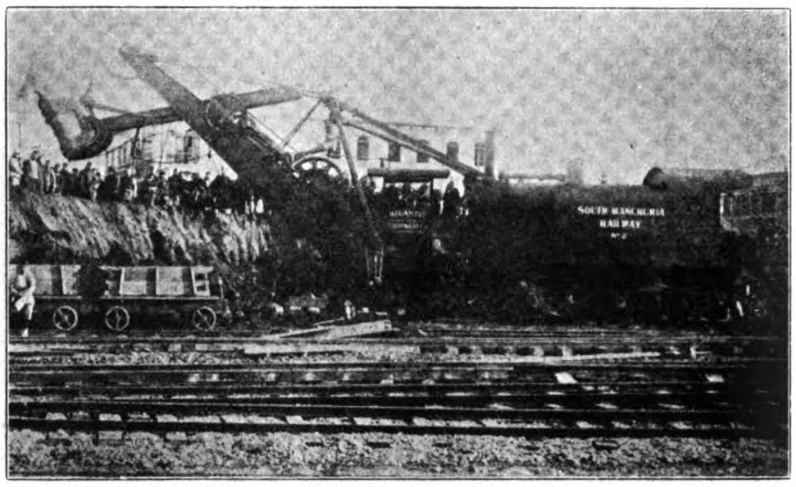
SOUTH MANCHURIA RAILWAY.—STATION AT NEWCHWANG



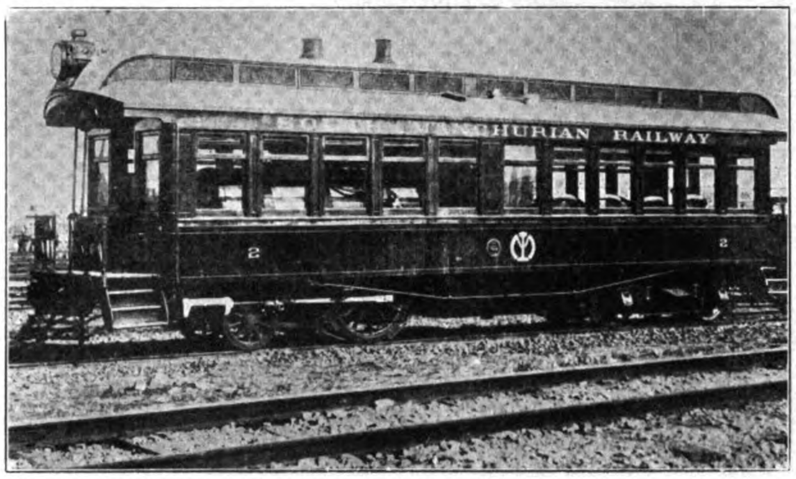
S. M. RAILWAY.—ROUND HOUSE AT LIAOYANG



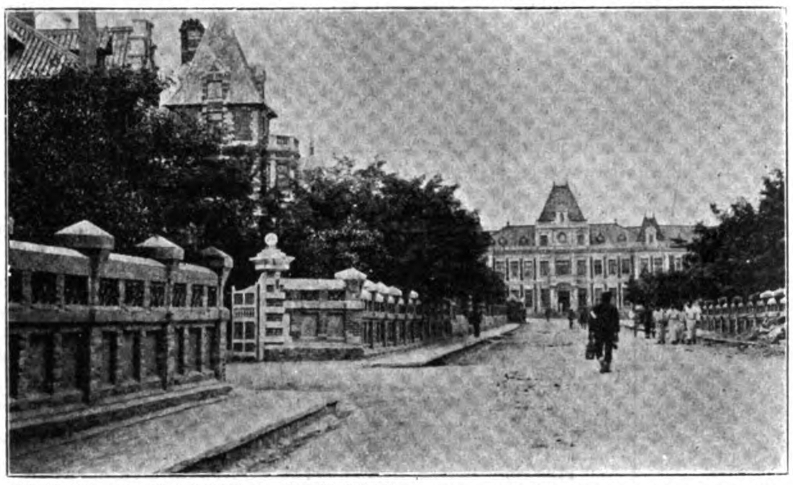
SOUTH MANCHURIA RAILWAY.—AMERICAN LOCOMOTIVE



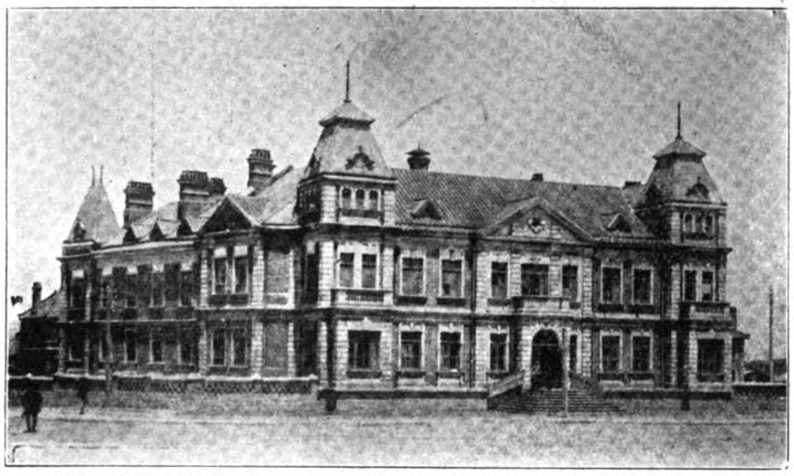
SOUTH MANCHURIA RAILWAY.—AMERICAN EXCAVATOR AT WORK



SOUTH MANCHURIA RAILWAY.—MOTOR CARRIAGE

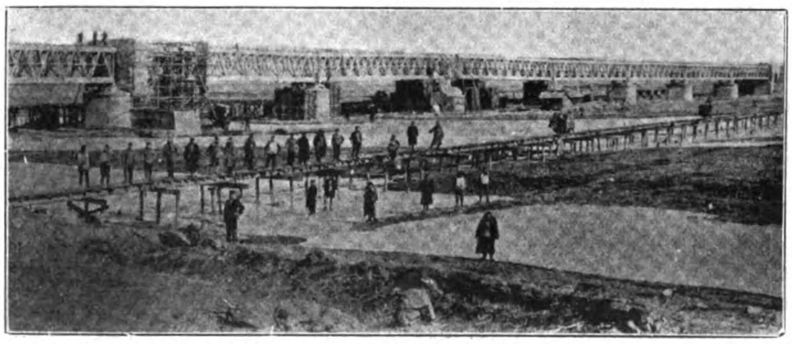


SOUTH MANCHURIA RAILWAY.—OLD ADMINISTRATION OFFICES AT DAIREN (NOW USED AS HOTEL)



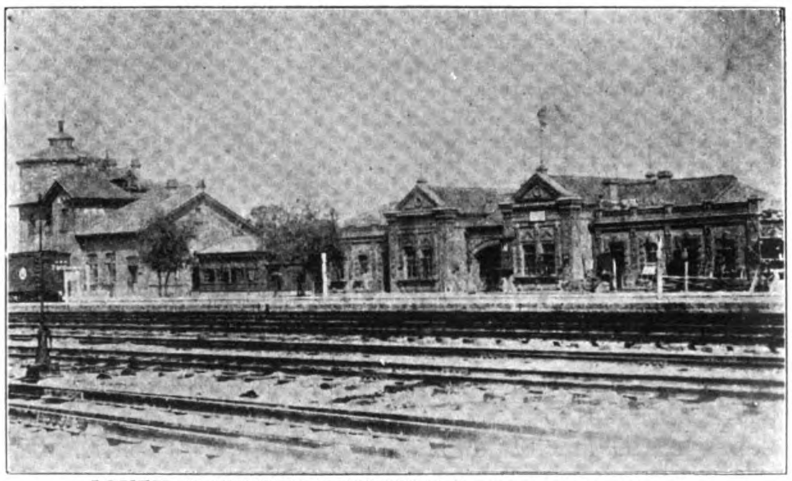
SOUTH MANCHURIA RAILWAY.—NIHONBASHI OFFICE, DAIREN

SOUTH MANCHURIA RAILWAY.—EMPLOYEES' QUARTERS, DAIREN

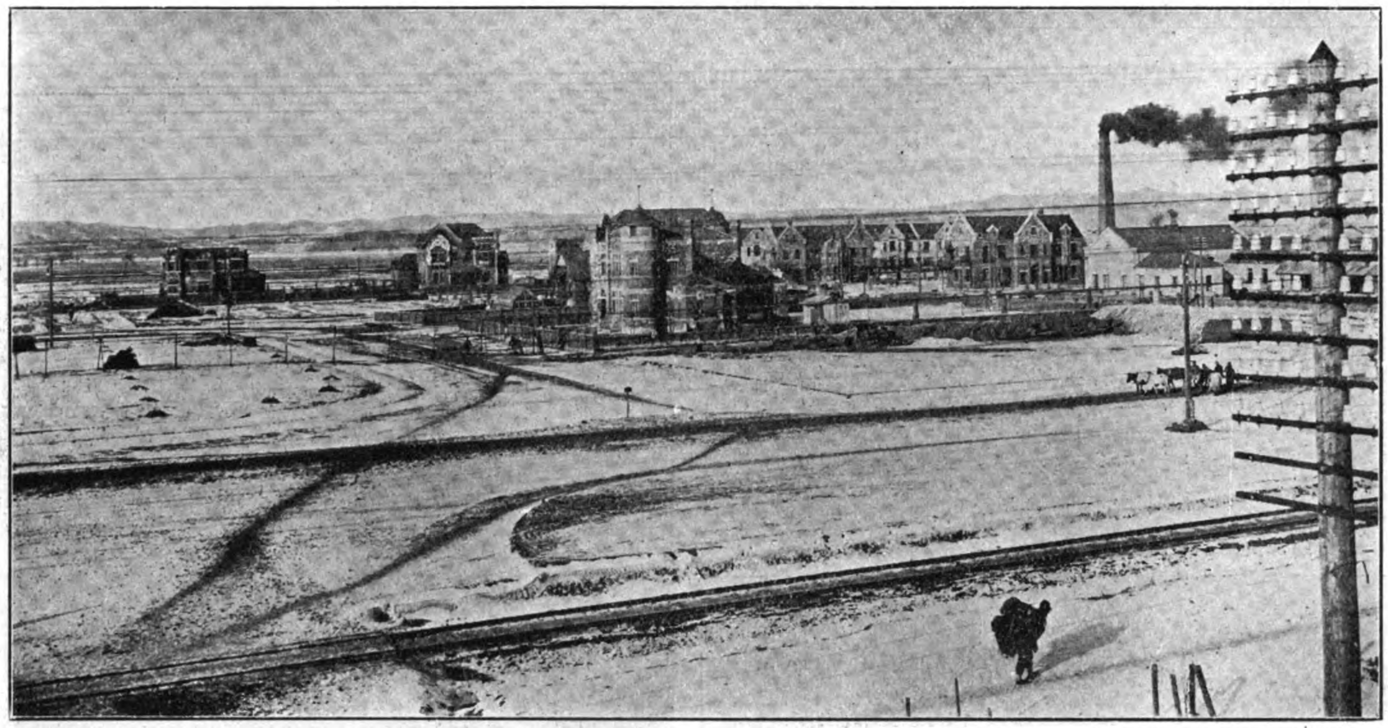


SOUTH MANCHURIA RAILWAY.—BRIDGE NEAR DAIREN

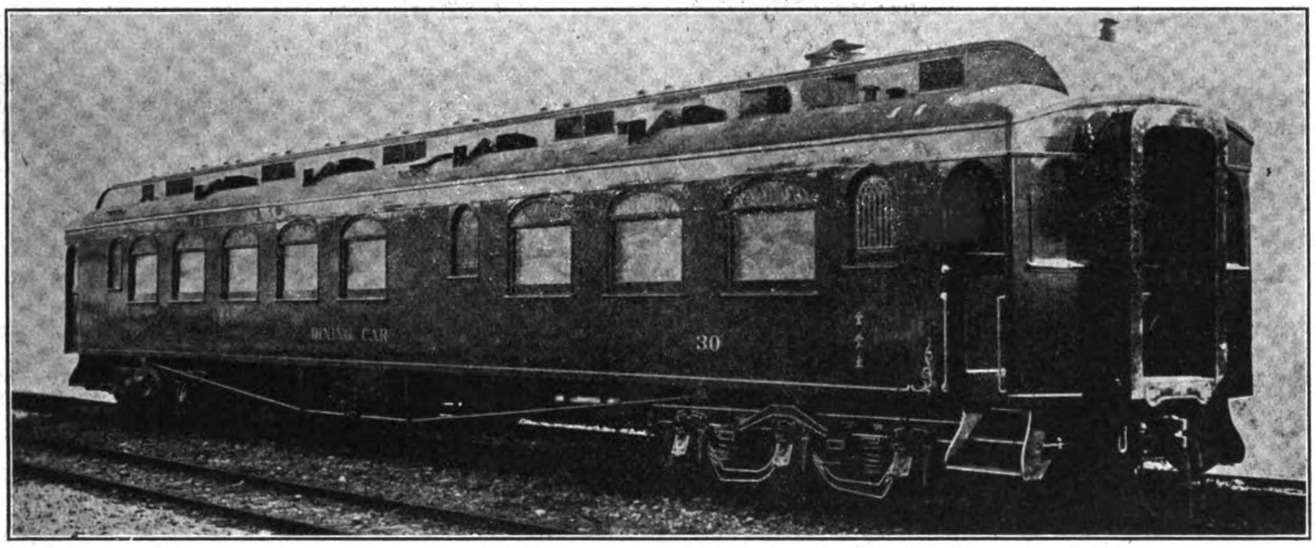
hoped that it will ultimately become profitable owing to the fact that it will form part of the through trunk line to Fusan and will be of great service in developing the mineral resources of south-eastern Shengking.



SOUTH MANCHURIA RAILWAY.—LIAOYANG STATION



FUSHUN COAL MINES OF THE SOUTH MANCHURIA RAILWAY CO.: PANORAMIC VIEW OF THE MINES AT CHIEN-CHIN-CHAI, NO. 2



PULLMAN DINING CAR ON THE SOUTH MANCHURIA RAILWAY

There are now 187 miles of track but the line will be considerably shortened when the gauge is widened and the final roadbed constructed.

The Yentai and Fushun branches, respectively 14 and 25 miles in length, connect the coal mines at these places with the main road.

A railway probably will shortly be constructed between Changchun (Kuangchengtzu) and Kirin, and it is stated that a company has already been organized with a capital of 4,000,000 Taels, and has engaged Japanese engineers to undertake the preliminary surveys.

Principal Officials of the Railway Administration.—President, Z. Nakamura, Dairen; Vice-President, S. Kunisawa, Dairen; Directors, C. Seino, (Tokyo Branch), Tokyo; K. Kubota, N. Inuzuka, S. Tanaka, M. Kubota, S. Okamatsu, K. Nonomura, Dairen; Secretary, M. Numata, Dairen; Chief Railway Engineer, S. Kunisawa, Dairen; Chief Mining Engineer, Matsuda, Fushun Collieries; Chief Accountant, S. Yasuda, Dairen; Construction Engineer, S. Hori, Dairen; Superintendent of Hospitals, Dr. K. Kasai, Dairen; Captain Superintendent, Capt. K. Matsuo, Dairen; Mechanical Engineer, M. Yoshino, Dairen; Harbor Engineer, T. Uchida, Dairen; Electrical Engineer, Y. Kasuya, Dairen; Superintendent of Hotels, K. Uyeda, Dairen; Store Superintendent, S. Yamamoto, Dairen.

COMPARATIVE SEMI-ANNUAL STATEMENT OF PROFIT & LOSS

		1st working half-year (*April-Sept.* 1907.)	CR 2nd working half-year (*October* 1907 *March* 1908.)
1.	Railway Receipts	Y 4,093,424.860	Y 5,675,462.253
2.	Mine Receipts	647,065.693	837,153.557
3.	Harbour Receipts	146,848.338	425,644.280
4.	Hotel Receipts	16,451.800	42,940.910
5.	ElectricWork.	5,674.000	59,247.400
6.	Land	33,537.545	87,256.906
7.	Miscellaneous	59,456.813	412,951.411
	Total	Y 5,002,459.049	Y 7,540,656.717

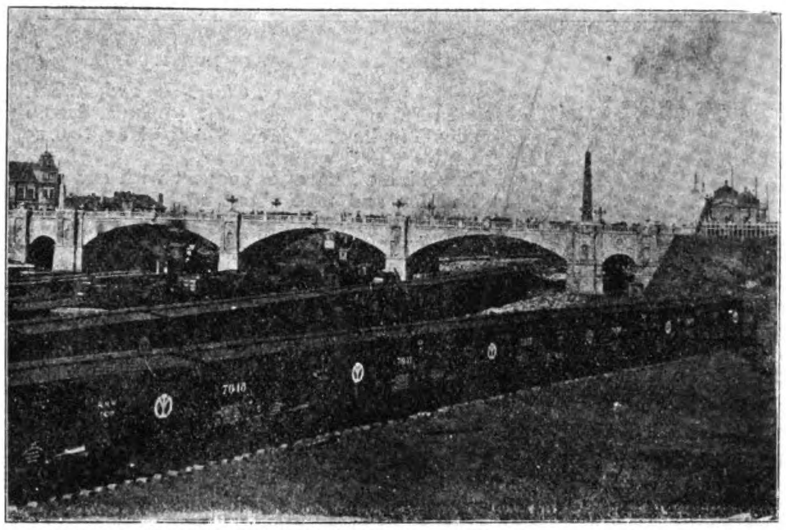
LIABILITIES

		1st working half-year (*April-Sept.* 1907.)	DR 2nd working half-year (*October* 1907 *March* 1908)
1.	Railway Expenditures	Y 2,757,446,446	Y 3,344,168,420
2.	Mine Expenditures	348,251.072	582,963.309
3.	Harbour Expenditures	63,624.343	496,526.229
4.	Hotel Expenditures	32,025.735	58,194.457
5.	Electric Work Expenditures.	39,307.403	61,930.175
6.	Land Expenditures	85,730.665	165,275.457
7.	General Expenditures	688,899.026	708,731.794
8.	Debenture redemption Fund	58,578.000	8,578.500
9.	Interest on Debentures	....	976,300.000
	Total	4,073,862.690	6,452,667.841
	Net profit	928,596.359	1,087,988.876

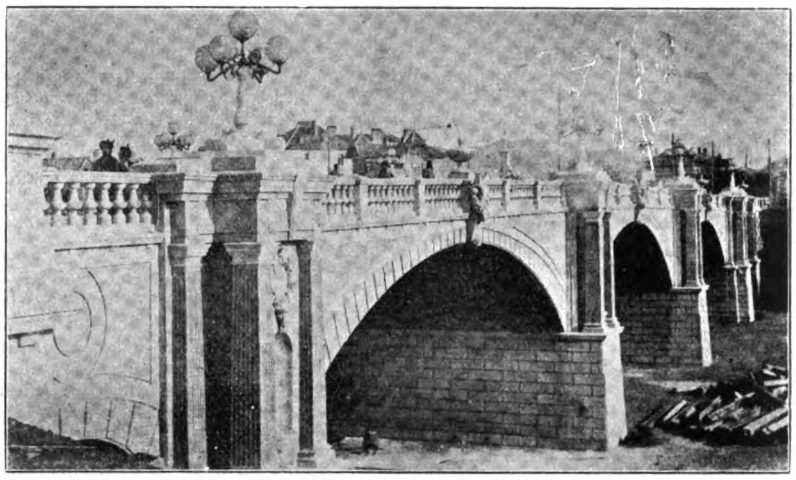
COMPARATIVE SEMI-ANNUAL STATEMENT OF ASSETS & LIABILITIES

ASSETS

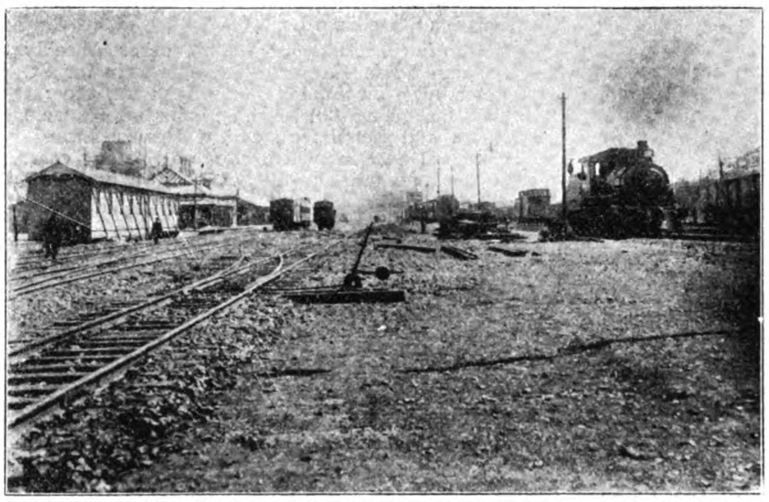
		1st working half-year (*April-Sept.* 1907.)	2nd working half-year (*October* 1907 *March* 1908.)
1.	Uncalled Capital	Y 18,000,000.000	Y 18,000,000.000
2.	Properties taken over from the Government of Japan	100,000,000.000	100,000,000.000
3.	Capital Expenditures	4,513,325.415	14,048,757.648
4.	Stores	2,021,887.525	13,796,971.252
5.	Coal in stock.	144,765.398	138,744.713
6.	Ground and Buildings of Tokyo Branch office	183,731.250	633,731.250
7.	Difference between Face Value & Issue Price of debentures	2,928,900.000	2,928,900.000
8.	Suspension account	646,200.755	1,434,322.690
9.	Sundry Debtors	175,076.349	809,046.677
10.	Workshop %.	125,046.955	124,876.111
11.	Deposits	5,007,712.688	13,416,661.310
12.	Cash on hand	122,062.348	144,099.096
13.	Unpaid Debentures	28,117,440.000	....
14.	Postal and Revenue Stamp %	....	3,420.000
	Total	Y161,986,148.683	Y165,449,530.967



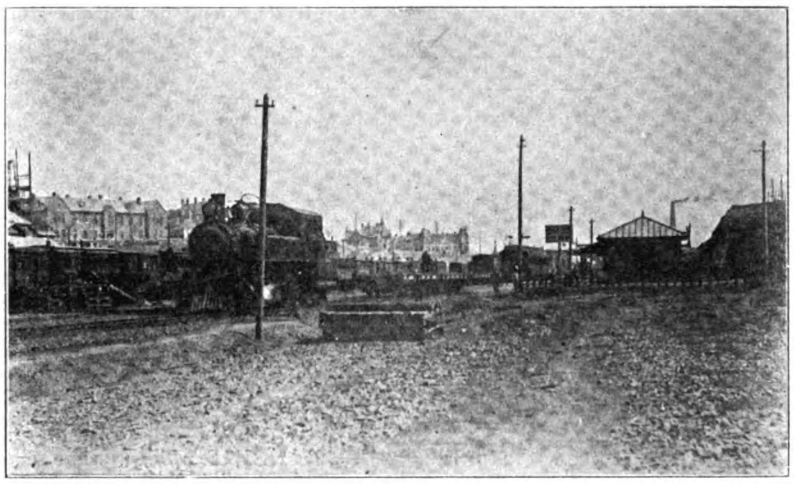
SOUTH MANCHURIA RAILWAY.—NIPPON BRIDGE AT DAIREN



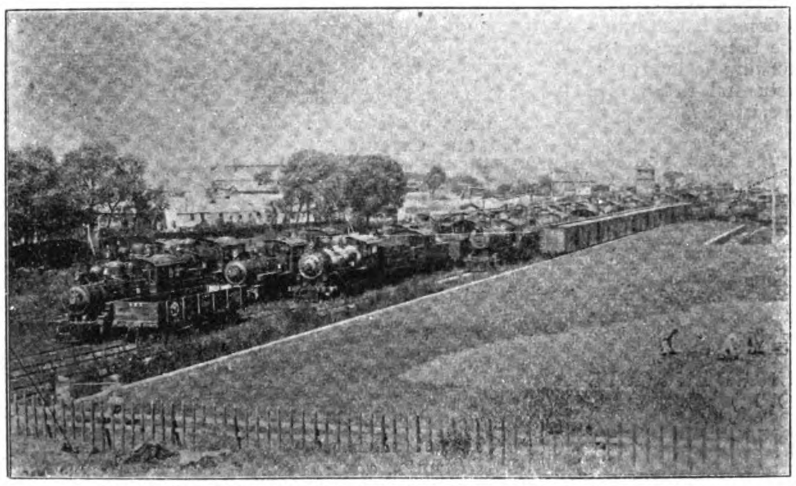
SOUTH MANCHURIA RAILWAY.—NIPPON BRIDGE, DAIREN



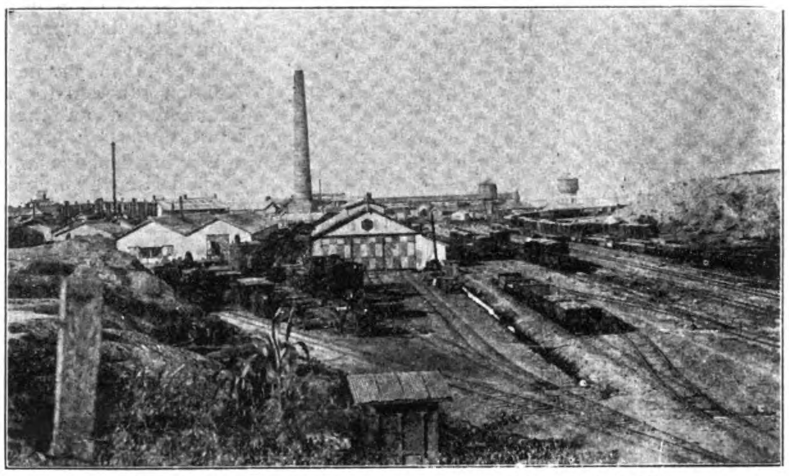
SOUTH MANCHURIA RAILWAY.—DAIREN STATION (AT LEFT)



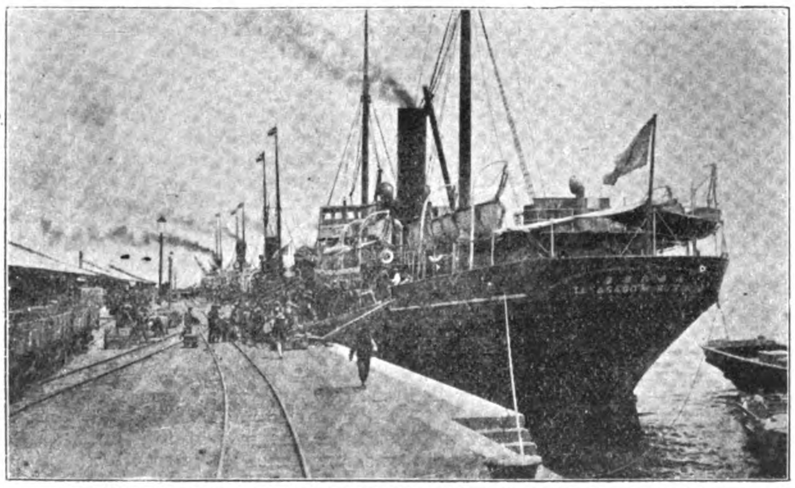
SOUTH MANCHURIA RAILWAY.—DAIREN STATION



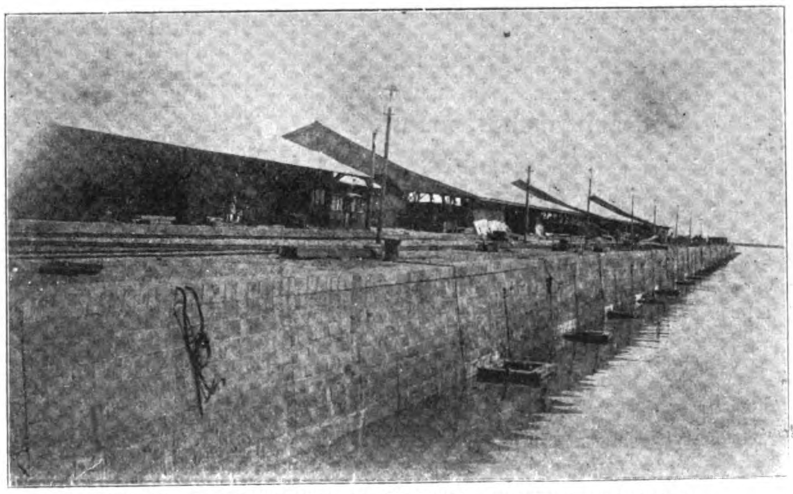
SOUTH MANCHURIA RAILWAY —YARDS AT DAIREN



S. M. R.—VIEW OF YARDS FROM NIPPON BRIDGE



SOUTH MANCHURIA RAILWAY—WHARF AT DAIREN



SOUTH MANCHURIA RAILWAY.—WHARF AT DAIREN

LIABILITIES

		1st Working Half-Year (April-Sept. 1907.)	2nd Working Half-Year (October 1907 March 1908.)
1.	Capital Authorised	Y200,000,000.000	Y200,000,000.000
	Capital Subscribed	120,000,000.000	120,000,000.000
2.	Legal Reserve Fund	22,705.890	69,135.710
3.	Unclaimed Dividends	6,675.120	5,372.130
4.	Debentures	39,052,000.000	39,052,000.000
5.	Debenture redemption Fund	58,578.000	117,156.000
6.	Guarantee Deposits	1,935.600	260.000
7.	Suspension %	635,257.232	2,931,281.977
8.	Sundry Creditors	896,659.803	873,379.544
9.	Special Reserve Fund	....	200,000.000
10.	Land Rent %	....	5,696.082
11.	Savings Deposits	....	181,353.410
12.	Brought forward from last half-year	383,740.679	925,907.218
13.	Balance Profit and Loss %	928,596.359	1,087.988.876
	Total	Y161,986,148.683	Y165,449,530.947

SEMI-ANNUAL TRAFFIC RECEIPTS & EXPENDITURES
(Sept. 1907—March 1908.)

RECEIPTS

		Main Line Antung	Mukden Line
1.	Passenger Traffic	Y1,707,046	Y 91,550
2.	Goods Traffic	3,795,977	77,145
3.	Miscellaneous	3,683	60
	Total	Y5,506,796	Y168,755

EXPENDITURES

1.	Maintenance	Y 815,502	Y149,204
2.	Operation	1,465,514	172,170
3.	Traffic	673,576	68,202
	Total	Y2,954,592	Y389,576

COMPARATIVE STATISTICS OF OUTPUT OF FUSHUN COAL

Months	Quantities Mined	Quantities Sold	Quantities Consumed by Co.
Oct '07	23,525	1,637	12,970
Nov. '07	21,883	7,286	8,833
Dec. '07	24,934	3,033	9,489
Jan. '08	23,374	6,919	12,110
Feb. '08	17,635	7,082	18,247
March '08	27,082	13,674	24,093
April '08	27,802	5,748	21,033
May '08	31,425	7,623	19,512
June '08	33,504	10,079	30,402
July '08	37,048	10,107	36,807
Aug. '08	34,476	8,847	20,884
Sept. '08	40,274	14,314	23,624
Total	342,962	96,349	238,004

PARTICULARS OF THE RAILWAY AREA

AREA OF THE RAILWAY ZONE

1. Within the Leased Territory.	6,637,671	"tsubo."*
2. Along the Main Line outside the Leased Territory	40,107,477	,,
3. Along the Yingkou Branch Line	1,790,102	,,
4. Along the Fushun Branch Line	528,797	,,
5. Along the Antung-Mukden Light Railway Line	1,522,350	,,
6. The balance scattered over a number of places along the Lines	3,585,315	,,
Total	54,171,712	,,

LAND AND BUILDING AREA RENTED

1.	The total area of land rented out at the end of July 1908	12,814,083	"tsubo."
2	The total building area rented out at the end of July 1908	12,171	.

SOUTH MANCHURIA RAILWAY EXPRESS TRAINS

composed exclusively of the Pullman Dining, Sleeping, and 1st Class Cars, are operated Semi-Weekly as follows:

FOR EUROPE

DAIREN

Sunday—Arr. about 6 a. m. by S S "Kobe-Maru" from Shanghai.

Monday and Friday—Dep. 8 a. m.

*A "Tsubo" represents 36 square feet.

CHANGCHUN

*Tuesday and ‡Saturday.—Arr. 5 a. m. South Manchuria Ry. Dep. 5.40 a. m. Chinese Eastern Ry. for Harbin.

FROM EUROPE

CHANGCHUN

§Tuesday and †Saturday.—Arr. 7.30 p. m. (C. E. R. from Harbin.) Dep. 8.40 p. m. (S. M. R.)

DAIREN

Wednesday and Sunday.—Arr. 6.15 p. m.

Monday.—Dep. Noon. (By S. S. "Kobe-Maru" for Shanghai).

Dairen-Shanghai Steamer Service.—Passage tickets are on sale and berths may be reserved at the principal stations of South Manchuria Railway and also at the agencies of the International Sleeping Car & Express Trains Company and also Messrs. Thos. Cook & Son in Europe and the Far East, for the fast passenger steamer *Kobe-Maru* (2,877 tons) carrying a duly qualified surgeon on board, on the Dairen-Shanghai steamer service.

Leaving Dairen—Mondays at noon, and
Arriving Shanghai—Wednesdays.
Leaving Shanghai—Fridays.
Due at Dairen—Sundays, in early morning generally.

FARES:

	1st Class	2nd Class	3rd Class
Single Trip	-Y-40	-Y-25	-Y-10
Return Trip	-Y-64	-Y-40	-Y-20

How to take the quickest route from Europe to the Far East.—Suppose you take the Wagons-Lits train leaving Moscow every Wednesday and due at Harbin at 7.35 a. m. on the following Saturday.

8 hours and 25 minutes later, you will start for Chang-chun (Kwangchengtzu) Junction of the Russian and the Japanese Lines, reaching there at 7.05 on the same evening, in time to be transferred to one of our Semi-Weekly Express Trains composed exclusively of the Pullman Sleeping, Dining, and 1st-class Cars, leaving Changchun on Tuesdays and Saturdays.

The Saturday Express will depart from Changchun at 8.40 p. m., just like the other, and is due at 5.40 a. m. next morning (Sunday) at Mukden Junction for Tientsin and Peking via Shanhaikwan on the Imperial Railways of North China.

Leaving Mukden 25 minutes later, you will reach Dairen at 6.15 on the same evening, to put up, if you are so minded, at the Railway Hotel "Yamato" which is gaining in favor with the travelers for its irreproachable service and attention.

The passenger steamer *Kobe-Maru*, sailing from Dairen at noon every Monday, will take you to Shanghai on Wednesday.

TIME AND MONEY REQUIRED EN ROUTE (FROM EUROPE.)

MOSCOW-SHANGHAI.

Moscow-Changchun—11 days.

1st class—Rbls. 282 2-5, including Sleeping Berth fee.

2nd class—Rbls. 184 3-10.

The Harbin-Kwangchengtzu Russian Section runs no Sleepers.

Changchun-Dairen—21 hours.

1st class—-Y-39 9-20.

2nd class—-Y-13¾.

Including Express Extra and Sleeping Berth Fees.

Dairen-Shanghai—2 days.

1st class—-Y-40, single trip (return trip -Y-64).

2nd class—-Y-25, single trip (return trip -Y-40.)

Nearly—15 days.

*It connects with the International Train de Luxe, leaving Harbin for Moscow every Tuesday.

‡It connects with the Russian State Express, leaving Harbin for St. Petersburg every Sunday.

§It connects with the Russian State Express from St. Petersburg for Vladivostock, leaving Harbin every Saturday.

†It connects with the International Train de Luxe from Moscow for Vladivostock, leaving Harbin every Saturday.

IMPERIAL RAILWAYS OF NORTH CHINA.

	1st Class.	2nd Class.
Mukden-Peking	Mex. $31.30	Mex. $19.60
Mukden-Yingkow	Mex. $ 9.80	Mex. $ 6.15

The Chinese Expresses connect with our own at Mukden and take about 26 hours between Mukden and Peking.

From the Far East to Europe.—Peking-Moscow.

Dep.—Peking, 5.30 p. m., daily, by Imperial Railways of North China.

Arr.—Mukden, 6.45 p. m., on the second day.

Dep.—Mukden, 8.20 p. m., on Mondays, by South Manchurian Express:

Arr.—Changchun, 5 a. m., Tuesdays.

Dep.—Changchun, 5.40 a. m., Tuesdays, by Chinese Eastern Railway.

Arr.—Harbin, 4.10 p. m., Tuesdays.

Dep.—Harbin, 6.25 p. m., Tuesdays, by Russian State Express:

Arr.—Moscow, 7.10 p. m., Thursdays week, Russian State Express.

Harbin-St. Petersburg.—The other Weekly Russian State Expresses leave Harbin for St. Petersburg, on Sundays, at 6.25 p. m., the 1st class fare being Rbls. 298.95, including Express Extra and Berth fees, except Harbin-Kwangchengtzu Section, which runs no sleeping cars. This trip takes in all 235 hours a little less than 10 days.

St. Petersburg-London.—The Expresses leaving the Russian Capital at 6 p. m. will land you in London, at 10 p. m. of the third day, taking about 53 hours and about Rbls. 98 for the fare.

The report of the Railway for half-year ended March, 1909, is as follows:—

Receipts.	Yen.
Railway income	8,164,391
Shipping income	72,489
Mining income	1,380,119
Harbor income	701,033
Local income	134,444
Hotel income	72,718
Electric income	131,146
	10,656,340

Disbursements.	Yen.
Railway expenses	2,573,818
Shipping expenses	164,646
Mining expenses	859,139
Harbor expenses	518,470
Local expenses	180,648
Hotel expenses	79,195
Electric expenses	125,231
Losses	244,717
General expenses	633,690
Interest on debentures	1,822,427
Debenture reserve	2,112,570
	9,314,551

The net profits of the railway and mining departments, *yen* 5,590,573 and *yen* 520,980, are more than double those of the corresponding period of the preceding year, which were *yen* 2,331,293 and *yen* 254,190, respectively. The debentures reserve and the interest on debentures amount to *yen* 2,112,570 and *yen* 1,822,427, against *yen* 58,500 and *yen* 970,000 in the preceding half-year respectively. It will therefore be seen that the net profit, *yen* 1,341,789, is in the highest degree gratifying.

In the preceding six months the total receipts and disbursements were *yen* 6,959,342 and *yen* 6,187,548 respectively, and the debenture reserve was only *yen* 134,500. The principal cause of the large earnings during the past half-year has been the heavy transportation of beans and beancake.

The quantity of these commodities transported amounts to over 672,000 tons, an increase of 420,000 tons as compared with the preceding half year.

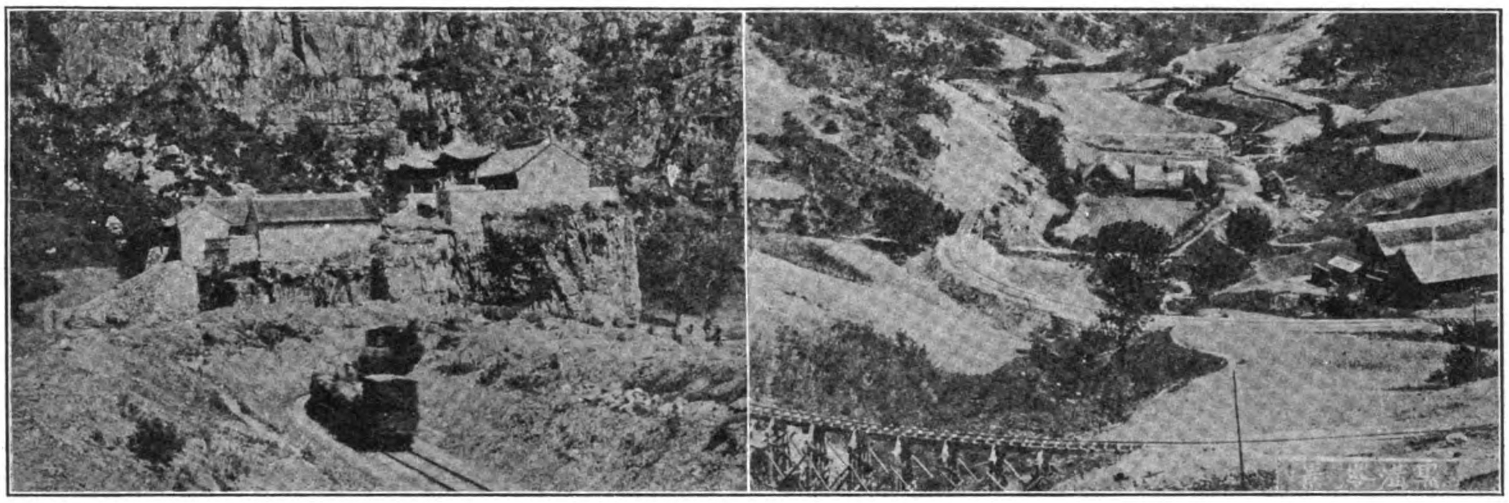
The decrease of *yen* 209,000 in passenger receipts is due in part to an amendment of the fares in June, 1908, and in part to a decrease in the number of long distance passengers.

THE ANTUNG-MUKDEN RAILWAY

(OPERATED UNDER THE MANAGEMENT OF THE SOUTH MANCHURIA RAILWAY CO.)

This hitherto unimportant commercial road has been brought under the international search light by the recent action of Japan in forcing China's hand, and undertaking its reconstruction in the face of her opposition.

The road is apart from other existing railways in China, as it came into being to meet the exigencies of the Japanese military operations during the struggle with Russia, and was therefore hurriedly constructed. Subsequently, under Article VI of the additional agreement between Japan and China dated Dec. 22, 1905, Japan acquired the right to improve and operate the Antung-Mukden line for a period of eighteen years from the date of the agreement, after which the Chinese government acquired the right to purchase the line at a price to be determined by valuation and arbitration. China stipulated however, that the road should be reconstructed within two years after the military evacuation of the country, which occurred in December 1906. Thus according to the agreement the road should have been reconstructed by December 1908.



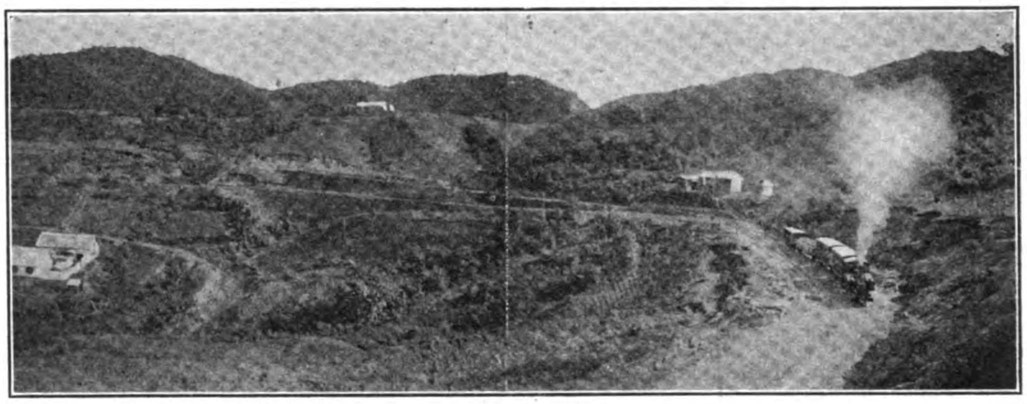
VIEW OF ANTUNG-MUKDEN RAILWAY

The full text of Article VI reads:—

"The Imperial Chinese Government agree that Japan has the right to maintain and work the military railway line constructed between Antung and Moukden and to improve the said line so as to make it fit for the conveyance of commercial and industrial goods of all nations. The term for which such right is conceded is fifteen years from the date of the completion of the improvements above provided for. The work of such improvement is to be completed within two years, exclusive of a period of twelve months during which it will have to be delayed owing to the necessity of using the existing line for the withdrawal of troops. The term of the concession above mentioned is therefore to expire in the 49th year of Kuang Hsu. At the expiration of that term, the said railway shall be sold to China at a price to be determined by appraisement of all its properties by a foreign expert who will be selected by both parties. The conveyance by the railway of the troops and munitions of war of the Chinese Government prior to such sale shall be dealt with in accordance with the regulations of the Eastern Chinese Railway. Regarding the manner in which the improvements of the railway are to be effected, it is agreed that the persons undertaking the work on behalf of Japan shall consult with the Commissioner despatched for the purpose by China. The Chinese Government will also appoint a Commissioner to look after the business relating to the railway as is provided in the Agreement relating to the Eastern Chinese Railway. It is further agreed that detailed regulations shall be concluded regarding the tariffs for the carriage by the railway of the public and private goods of China."

Against the fulfilment of the above concession China has from time to time interposed objections, and employed evasive tactics to nullify its terms. It is entirely probable that a satisfactory compromise would have been reached, had the negotiations remained in the hands of Viceroy Hsu Shih Chang and his foreign educated advisers, but his removal and the appointment of the reactionary Viceroy Hsi Liang, brought about a speedy termination to the controversy. As a last argument Viceroy Hsi took the view that, although the treaty provides for the improvement of the railway, it does not provide for its reconstruction, and what was meant by China was that Japan might repair the line to adapt it for the conveyance of goods, without any change of gauge.

This argument induced Japan to adopt a "strong attitude" in dealing with the matter, and led to the abrupt breaking off of the negotiations and the issuance of orders from Tokio to proceed with the work of reconstruction at once.



BLACK MINE PASS ON THE ANTUNG-MUKDEN RAILWAY

It is significant that not one official protest was raised by any of the Powers against Japan's move, and it disclosed the fact that China had alienated her best friends and stood alone. The two powers professing the greatest adherence to the Open Door doctrine, Great Britain and America, were conspicuous by their silence and apparent acquiescence in Japan's action. For two years China has been steadily attacking British interests and concessions all along the line, and one after the other have gone by the board, until it may be said that British diplomacy in China has suffered a complete breakdown. In her hour of trouble, China lost one of her sincere friends, and Britain returned the measure in full by endorsing the move of her ally. There appears to be little doubt that China, encouraged by the professed policy of the American government under President Taft, and the writings of certain American publicists who took the view that any future hostility between Japan and America would have its genesis in Manchuria, looked for something stronger than mere moral support in her controversy with Japan. The failure of America to support China, in this controversy, after all the pro Chinese publicity propaganda at home, has materially reduced her prestige throughout the Empire. It did not take China long to discover her isolation, and to save face she very readily assented to a reopening of the negotiations which terminated in settling all the outstanding issues with japan within 30 days after the crisis.

Japan is now proceeding with the reconstruction of the Antung-Mukden line. A description of the old line follows:

Shortly following the occupation of Antung by the Japanese forces on May 1, 1905, owing to the almost impassable character of the mountain roads in this region and the necessity of facilitating a more rapid movement of supplies, the construction of a light railway was begun by their engineer corps and its extension continued with the advance of the army as far as Shichiaotzu, a point about 30 miles to the south-east of Mukden. The country to the north and west of Shichiaotzu, drained by the Taitzu River, a tributary of the Hun Ho, being quite level and ordinary methods of transportation comparatively easy, this point was made the terminus of the railway until August, 1906, when the Okuragumi, a large Japanese concern, received from the military authorities a contract to extend it to Mukden. The construction of this section, covering a distance of 33 miles, was finished in less than one and one-half months.

While the railway follows practically the same route as when first laid, considerable grading has since been done, unsafe wooden bridges have in several places been removed and the gullies filled in with crushed stone, and at a few points the distance has been shortened and crossing over the mountains made less dangerous by cutting through ledges. The work of improving the road is still going on, gangs of Chinese workmen, each under a Japanese foreman, are scattered along the entire distance, and ties as well as other railway materials seem to form the bulk of the freight at present handled. No tunneling has yet been done and probably will not be until the survey of the permanent railway has been completed.

Wherever it could be done without making the route excessively circuitous, the road has been constructed side by side with river-beds, sometimes following a comparatively straight line and again winding among the mountains. There are four points at which the line crosses the tops of the mountains and where the trains either circles around the spurs or moves from side to side after the manner of a heavy-laden team going up or down a hill. At one place the line recrosses itself in parallel tiers one above the other as many as five times. Frequently the steep grades (1 in 30), the sudden turns and unstable wooden bridges follow one another in such a manner as to make the descent especially dangerous. Accidents are said to have been of very frequent occurrence formerly, but improved grading with crushed stone and more careful methods of operation have greatly lessened their number.

The gauge is 2 feet 6 inches. The rails as well as the rolling stock, including locomotives and trucks, were supplied by the Baldwin Locomotive Works. The system possesses altogether 150 locomotives, 100 of these being of 16 and the remainder of 11 tons. The freight cars are all open and similar to those used for hauling sand in America. There are two sizes, one with a capacity of 2, and the other 5 tons. The entire carrying capacity of the railway is only some 1,200 tons. Besides these open cars there are a number with tops and designed especially for the passenger traffic. At both Antung and Mukden there are several wooden buildings, which were once used for the storage of military supplies but at present seem in large part to be lying idle. The intermediate points also have storing facilities, used principally for the supplies of the railway employes, as well as substantial buildings of Chinese architecture for stations and the dwelling-houses of the railway officials.

The line was formerly under the control of the military authorities until its transference to the South Manchuria Railway Company, in December of 1906.

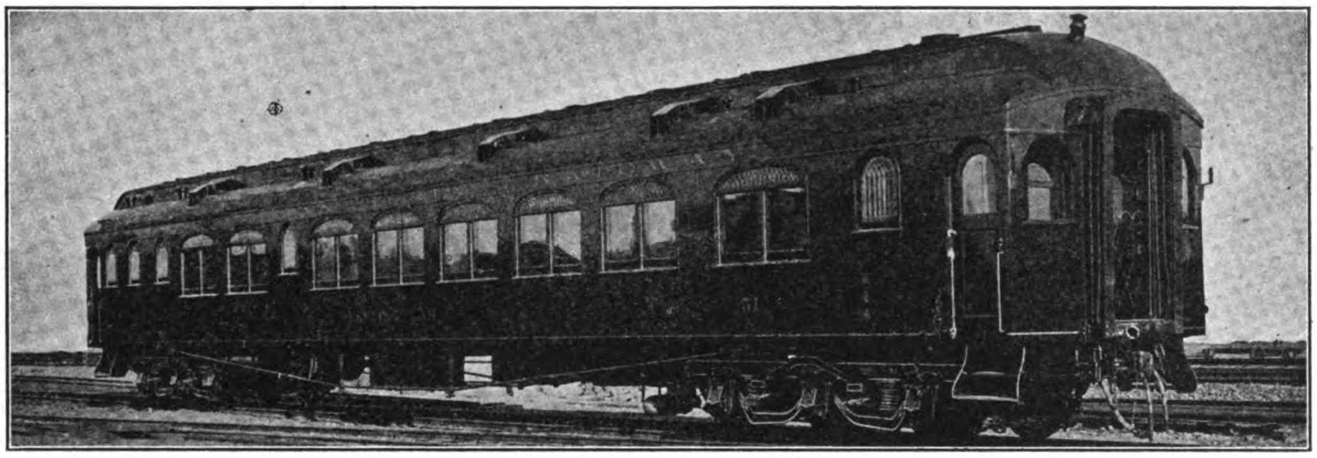
The line was opened to general traffic, both freight and passenger, in August, 1908. Two schedule-time runs are daily made from each end in addition to more or less regular ones between some of the intermediate points. The journey from Antung to Mukden requires two days. The through trains both leave in the morning, one at 6 o'clock and the other at 9, and reach Tsaohohu (Sokako) 12 hours later. Operation after dark would of course be subject to a great deal of risk, so that passengers are obliged to pass the night at this point, resuming their journey on the following morning at the same hours as before. Tsaohohu is not at all a suitable place to recover from the day's fatigue. It has a number of Chinese inns and one in Japanese style, neither particularly inviting to the foreigner. The traveler must bring his luncheon with him to Antung, as neither food nor drink can be secured until reaching Tsaohohu, and unless he is sure of satisfying his hunger with *cuisine japonaise*, which is all that is to be had here, he should equip himself at Antung with two days' subsistence.

At present, however, the importance of this railway as a channel of immigration is slight and even with improved accommodations it can give but little encouragement in the region traversed by it to Japanese colonization or the small commercial enterprise so characteristic in parts of Manchuria more easily accessible. Indeed, there is nothing perhaps except the spirit of adventure which would induce the merchant, prospector or immigrant to avail himself of this route for reaching interior Manchuria. The train leaving at 9 o'clock consists entirely of freight-cars. Two or three of these may be loaded with freight, but the most of them are intended for passengers, who clamber into them pell-mell and struggle among themselves for squatting room. The discomfort of travelling in this manner during a heavy rain or a cold north wind can readily be imagined. The earlier train has attached one or two of the passenger-cars already mentioned. These, however, are not any more comfortable to sit in than the freight-cars and preferable to them only in affording shelter from inclement weather. In fact, the experience of traveling by this route probably helps one to form a good picture of what the railway was in its early days and the distance, 187 miles (100 as the crow flies), is undoubtedly the greatest covered by a line of its kind. The average speed is about 9 miles an hour, although as high as 12 miles is reached on the level.

As already stated, the greater part of the freight handled consists of railway supplies. The amount of general goods carried is almost too small to be considered, and the supposition that the absence of a custom house at Antung has been taken advantage of to ship large quantities of merchandise into the region made accessible by this railway is not borne out by the actual conditions. The rate, 10 sen (5 cents) a ton per mile, for most commodities is so high as to leave only a small margin of profit and in some cases is entirely prohibitive.

The standard gauge railway to connect Antung with Mukden, it is expected, will follow the same general course as the present one. The Japanese railway administration hopes that within two years the standard gauge will be finished at a cost of Y23,000,000. The reconstruction is divided into 14 sections. From Antung the line will run to the trade mart of Fugnhuangcheng (36 miles), thence through the mountainous district of the Motienling by a series of tunnels to Penhsi-hsien, an important coal centre, crossing the Tatsu River just before reaching this place, and thence a further distance of 50 miles to Suchiatun, 10½ miles to the south of Mukden, at which point a junction is to be made with the main line. Suchiatun is also the junction connecting with the Fushun collieries. The total length of the new line will be 170 miles.

The railway bridge over the Yalu River will, it is anticipated, be completed within the same period. Thus through communication on a standard gauge railway from Fusan to Mukden will be established. This route will doubtless attract many travellers from Japan to North China and through to Europe *via* the Trans-Siberian Railway, and will be an important channel for mail communication.



PULLMAN SLEEPING CAR ON THE SOUTH MANCHURIA RAILWAY

NEW JAPANESE BARRACKS FOR THE RAILWAY GUARDS AT MUKDEN

CHINESE EASTERN RAILWAY

MAJ.-GEN. HORVATH, GENERAL MANAGER AND CHIEF OF THE RAILWAY STAFF OF THE C. E. RY., THE DOMINANT SPIRIT OF HARBIN

VICTOR F. LUBA, RUSSIAN CONSUL-GENERAL AT HARBIN, WHO WAS RECALLED

PRINCE KHILKOFF, CHIEF ENGINEER AND ASSISTANT CHIEF OF THE C. E. RY. STAFF, HARBIN

MAJ.-GEN. CHICHAGOFF, CHIEF OF THE RAILWAY GUARDS, HARBIN

The Trans-Siberian railway as originally projected followed the bank of the Amur River from Stetinsk to the Ussari, a wide detour through a difficult extent of country, and the Russians naturally turned with envious eyes towards the more southern route through Central Manchuria, whose wide level expanse offered no serious engineering difficulties. To reach Vladivostock via the Amur River, entirely within Russian territory, the railway had to follow the long frontier on a useless detour, while the route across Manchuria shortened the distance by about 500 miles. The Siberian road was officially started in May 1891 by the Czarevitch at Vladivostock, and during its construction the war between China and Japan occurred. When the victorious Japanese exacted from China a portion of Manchuria under the treaty of Shimonoseki, Russia interfered and prevented this alienation of Chinese territory. As compensation for their friendly offices Russia secured the concession to build a railway across Manchuria to connect her Siberian and Ussuri Systems. This instrument was duly entered into between China and the Russo-Chinese Bank, an irregular offshoot from the Russian Finance Department. The Bank was established in 1895 for the purpose of furthering Russian commercial and political enterprises throughout Eastern Asia, and while the head office is at St. Petersburg, the most important office is at Shanghai.

The Agreement between the Chinese Government and the Bank was signed September 8, 1896. The Company was to be organized with a capital of 5,000,000 roubles, to be subscribed to by Russian and Chinese subjects exclusively. It also provided for the survey of the line through Manchuria towards Vladi-

THE GREAT ADMINISTRATION BUILDING OF THE C. E. RAILWAY

vostock covering a distance of about 950 miles in Chinese territory and its construction. The gauge provided for was five feet. The line was to be the property of the company for 80 years upon the expiration of which time it reverted without cost to China. It also provided for the repurchase of the line in 36 years after it was put in operation at a price representing the cost of the line and interest. It further provided that upon the opening of the line for traffic the company would pay the Chinese Government the sum of Tls. 5,000,000.

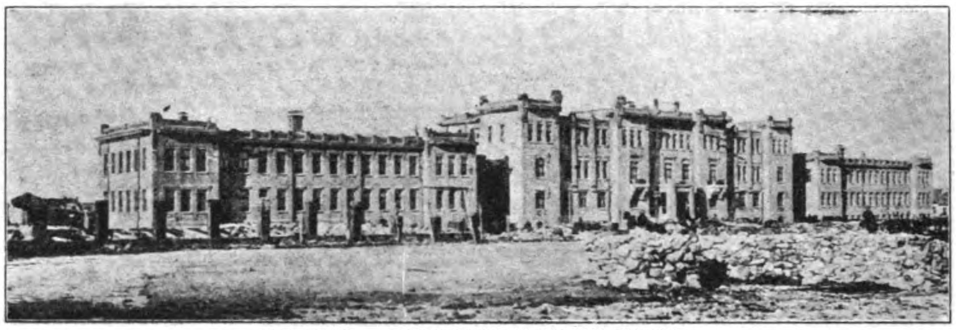
In the spring of 1897, work of construction was started and the same year the city of Harbin was founded and made the headquarters of construction. The following year, Russia secured a lease from the Chinese Government of the Liaotung peninsula, extending over a period of 25 years and with it, a concession to the Manchurian Railway Company to construct a southern line from Harbin to Port Arthur of five foot gauge. The construction of the line was pushed ahead rapidly and by the date of the boxer outbreak, with the exception of a number of bridges, it was practically completed. During this trouble much of the line was destroyed and especially between Harbin and Port Arthur. The work was, however, renewed with vigor and in the fall of 1901 the entire Chinese Eastern Railway connecting the Trans-Siberia with Vladivostock across Manchuria and the line south from Harbin to Port Arthur was completed. This system in Manchuria in all measured about 1,600 miles.

The cost of the road to Russia is estimated at 300,000,000 roubles ($150,000,000 gold) or roughly $90,000, per mile. This is exclusive of 250,000,000 roubles spent in building Port Arthur, Dalny, Harbin, fortifications and other enterprises outside the strictly railway work. An article in the FAR EASTERN REVIEW for May 1909, describing the growth and decline of Harbin is largely typical of the history of the Chinese Eastern Railway. Extracts from this follow:

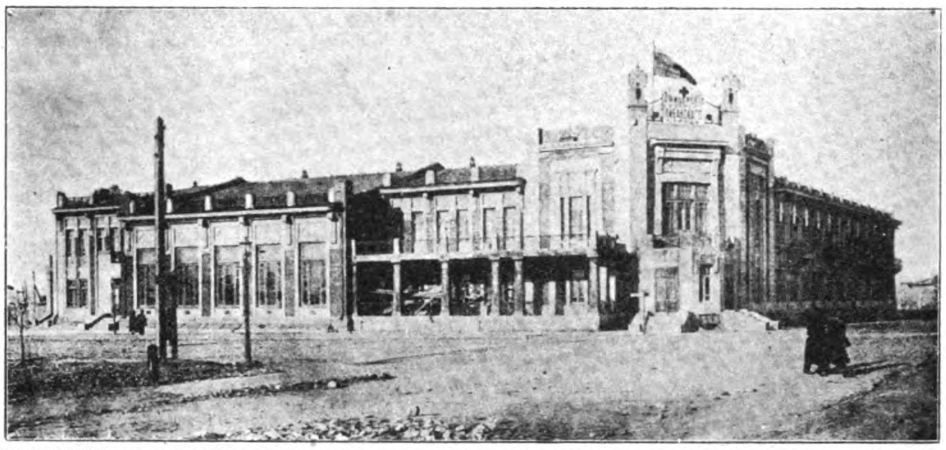
"In September 1896, the agreement between the Russo-Chinese Bank and the Chinese Government was concluded for the construction and management of the Chinese Eastern Railway. This was the link which was to bind the Pacific littoral with the great Trans-Siberian Railway, through Chinese territory in northern Manchuria, thus avoiding the greater task of following the crooked Amur River in the endeavor to seek an outlet to the sea. At the same time it created a new line of attack and approach to the goal at Peking, and the ultimate absorption of Korea. In the spring of 1897 the work of construction was commenced, and in the same year the city of Harbin was founded and made the administrative and working headquarters of the new enterprise. Harbin, the railway center of construction, was the ideal location for the concentration of material and forces, and was to be, in addition, the strategic center of Russia's new empire, and but for the unexpected war with Japan her purpose would have been crowned with success. From armed guards and administrative control to permanent occupation and annexation was only a short and easy step with decrepit old China, and Harbin was to be the center of the web which would enmesh the Three Eastern Provinces. From the new base Russia was to dominate Far Eastern trade, and Harbin was to become the Moscow of Asia, the Minneapolis of the Far East, and the Chicago of the Orient, and the products of her mills would be distributed by the railways radiating from the new city, and the network of waterways connecting with the Sungari.

So the city was located on the banks of the Sungari River at a point where the railway was to cross the stream, and where the connection southwards to Dalny was afterwards to be made. Situated 350 miles west of Vladivostok, and 600 miles north of Dalny, it was in the geographical center of Manchuria. When work on the railway at the eastern and western ends was commenced, vast stores of material were shipped by river craft up the Sungari to the new town so that work could also proceed from the center.

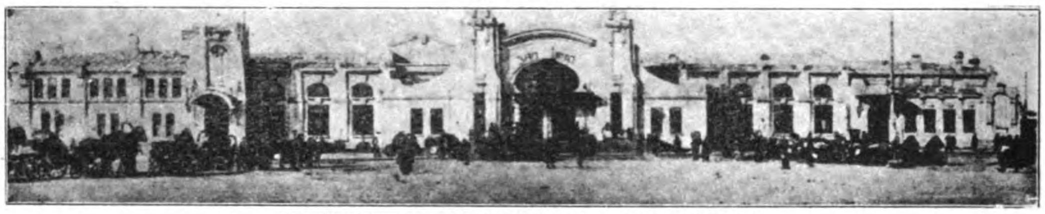
The old town was the first to be thrown open by the Railway Company for the purchase



HARBIN.—ADMINISTRATION BUILDING

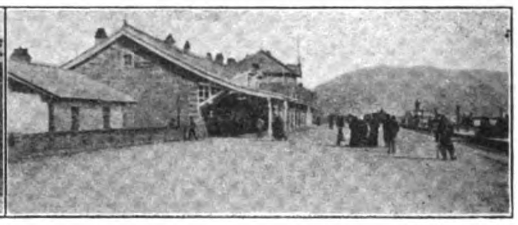


HARBIN.—THE OFFICIAL RAILWAY HOTEL, NOW USED AS THE RUSSIAN CONSULATE GENERAL



HARBIN.—FRONT VIEW OF RAILWAY DEPOT

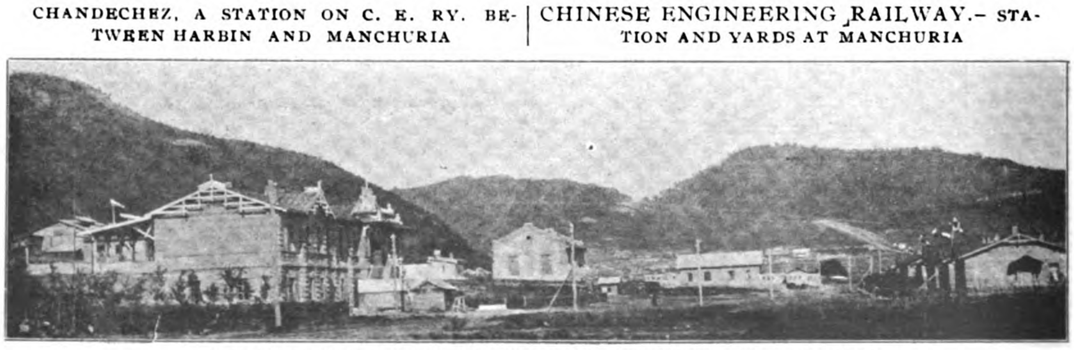
HARBIN.—HEADQUARTERS OF GENERAL STAFF FOR TRANS-AMUR DISTRICT



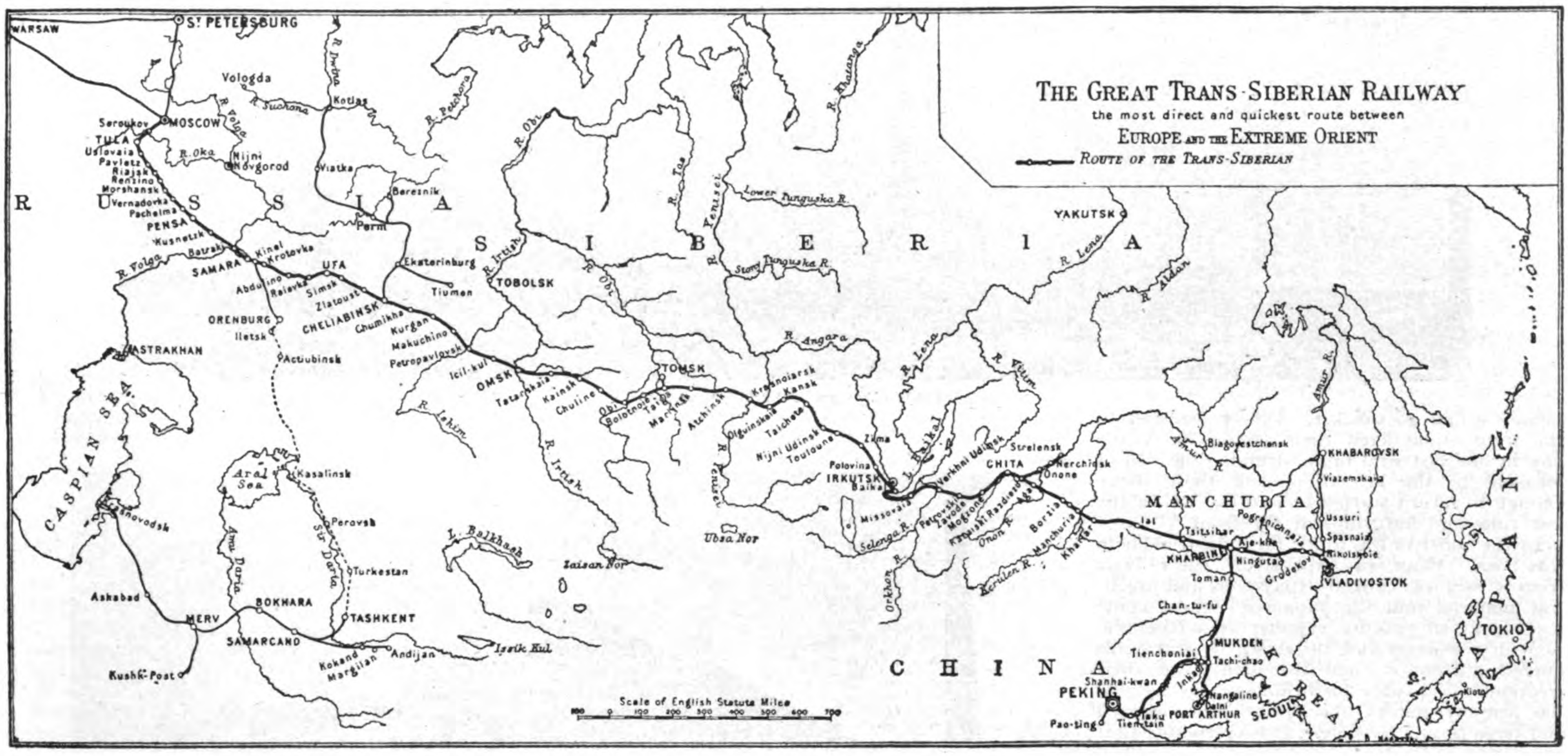
CHINESE ENGINEERING RAILWAY.—STATION AT IMJANPO. HAS LARGE BREWERY

CHANDECHEZ, A STATION ON C. E. RY. BETWEEN HARBIN AND MANCHURIA

CHINESE ENGINEERING RAILWAY.—STATION AND YARDS AT MANCHURIA



A TYPICAL STATION ON THE CHINESE ENGINEERING RAILWAY

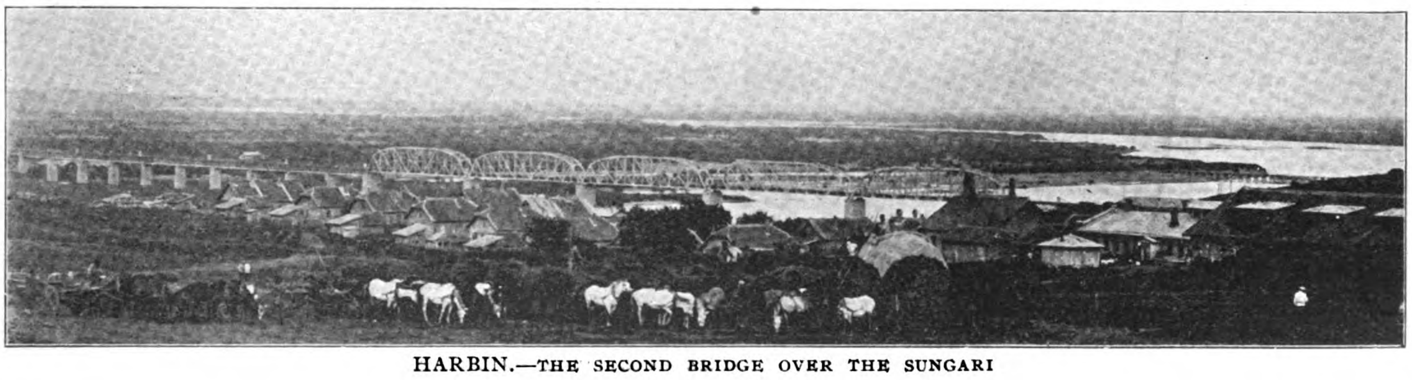


of land by private parties, at a rate of a little over one cent gold per square foot, but the price was soon raised to three cents per foot and over; the official town was then laid out and immense building plans entered into, while in the river town the prices soared to over 17 cents gold per square foot, and many large and substantial brick buildings were erected. Within a year from the time this section was opened to the public, it is estimated that over $5,000,000 gold was expended in building operations by the public. Additions were laid out adjoining the administrative town, and the land was immediately taken up by speculators and resold at prices as high as $5.00 gold per square foot. Nearly 3,000,000 roubles were received by the Railway Company from the sales of lands to private parties in a couple of years, all secured on an eighty-six years' lease.

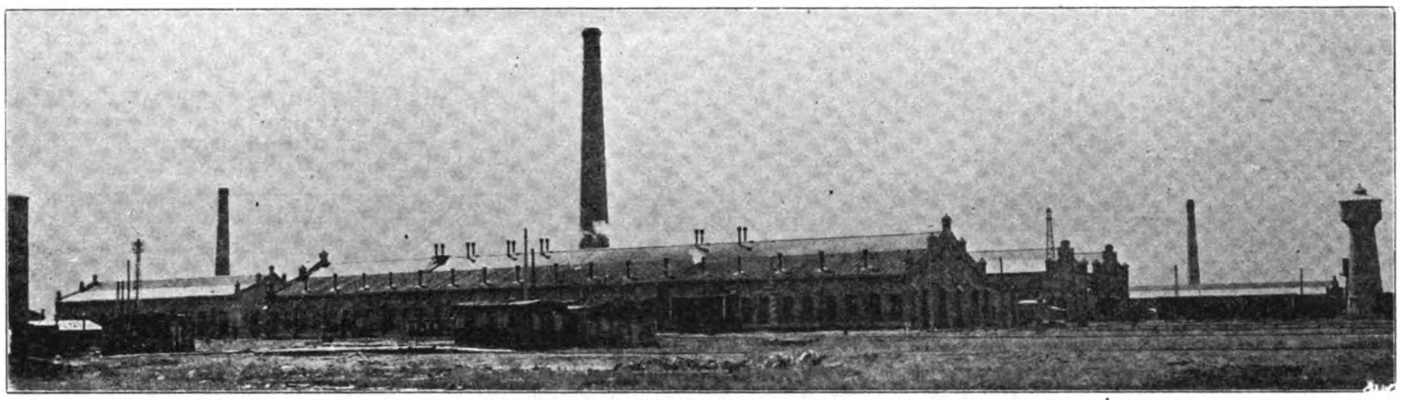
CHINESE EASTERN RAILWAY.—A TYPICAL STATION

Then followed the industrial boom. With a country rich in wheat and cereals, minerals and timber, flour mills, mines and saw mills were projected and erected. Breweries followed, vodka factories for the soldiers, meat packing plants and other large schemes were promoted. Prosperity was in the air. Everybody seemed to have money, and it was spent like water. Easy come, easy go. The Government was rich, and St. Petersburg was far away, and the high officials were too preoccupied with getting their share of the official "squeeze" to pay heed to the petty "graft" of the lesser employees, and the saturnalia whirled on with no thought of the morrow, or of the day of reckoning. It was a good thing, and it had to be carefully nursed and preserved. Russia for the Russians, and Manchuria for the elect and out with the foreigners.

Then came the war. The immense armies of the Czar, transported across Siberia, came to a halt at Harbin and were here encamped and forwarded on to the front as their time came. Here was the real military headquarters, here was the base, in which the commissariat, and quartermaster's stores were stacked up for reshipment further south. For the Russian the war began when he left Harbin for the front and ended when he returned. Here the officers, left their families, some wives, some mistresses, and here the camp follower halted and went no further, here the gamblers and sharpers plucked the easy going and good natured soldier, and the commercial adventurer divided the loot with the mercenary official. To Harbin swarmed the women, who made it their abode, bringing with them the luxuries of Paris and the life and atmosphere of the boulevards. Theaters multiplied, cafés chantants were in full blast, drinking saloons and pleasure resorts abounded. No less than 26 music halls catered to the pleasures of the soldiers, running day and night without pause. The pace was swift, life was short, and extravagance and recklessness the order of the day. Champagne flowed like water. Magnums took the place of the ordinary pint or quart bottles. They cost more and the



HARBIN.—THE SECOND BRIDGE OVER THE SUNGARI

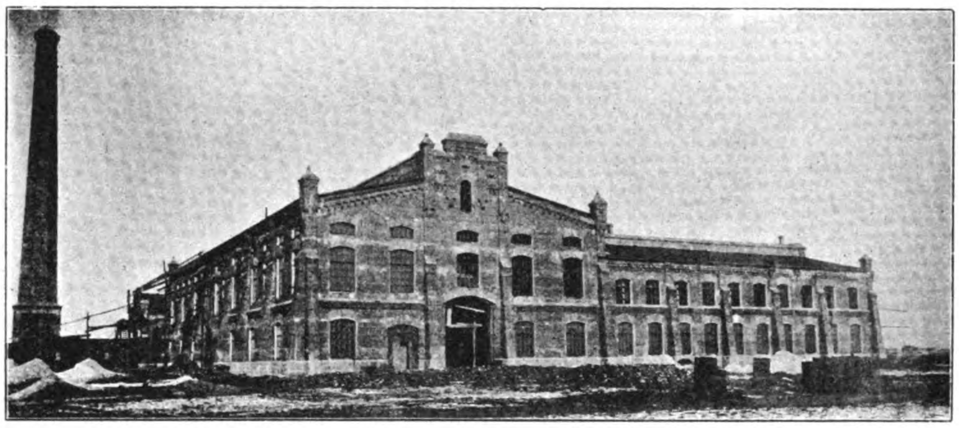


RAILWAY CAR SHOPS, HARBIN

money would go quicker. Officers ordered to the front squandered their savings or year's pay in one last wild orgie, drinking the cup of pleasure to the last drop, and those lucky enough to return started in to make up for the lost time and hardships at the front.

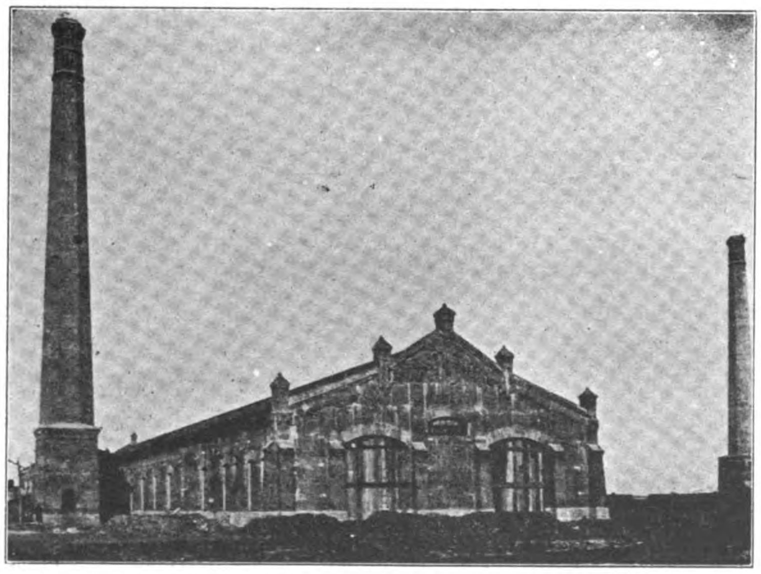
In the midst of the whirl, the industrial boom was born. Flour was expensive. The railway from Russia was choked with troops and urgent war material and the Japanese cruisers made it difficult to procure supplies from the sea, so with a country rich in wheat, flouring mills offered a solution, and the money for their erection was readily forthcoming. As long as the army remained the market was assured and large profits possible. It is calculated that 85 per cent of the fodder and provisions supplied were of local production. No thought seemed to be given to a return to normal conditions nor it appears was any attempt made to secure a market for the by-products. The investment was made on the demand created by the army and shareholders seemed to labor under the impression that the abnormal conditions would obtain indefinitely. Breweries, four of them were hastily erected; vodka distilleries, eight were placed in operation; meat packing establishments, brick making plants, saw-mills, a glass factory and other industries were rapidly financed and carried through. Profits were enormous, and expenses were saddled on the enterprises in accordance. High salaried Director Generals, Directors, Managers, Superintendents, and a host of sinecures were created and fastened on the companies before the real practical head of the concerned was reached. It is stated the administrative cost of the milling companies averaged 37 per cent of the total. Everything was lovely, and as long as the boom lasted, no one cared to look ahead for the hard times coming.

And behind all this whirligig of pleasure, vice, war, and industry stood the Russo-Chinese Bank, the magician that had waved the wand and brought it all about. Housed in its fine structure of stone, having its own heating plant and electric lights, erected at a cost of over 200,000 roubles, the Bank was the center, the hub around which Harbin revolved. Making no loans on realty, the management confined its efforts to advancing capital for current substantial business, and extending credits to Chinese merchants purchasing stocks of Russian goods, in addition to the regular exchange business. The results were profitable. Exclusive of purely government and railway business, the daily transactions exceeded 500,000 roubles just prior to the war, and this must have been increased owing to the swollen volume of trade. Cotton goods, sugar and other Russian products were thus introduced into the Manchurian markets. Imported free of duty through Vladivostok, favored with special rates on the railway and long credits by the Bank, Russian goods threatened for a while to secure a firm foothold. Encouragement of all kinds was given to the Chinese and Russian merchants, but to no outsiders. Harbin was to be the entrepot for Russian trade in the East, and the Open Door was only a dream of foreign diplomats that did not embrace Northern Manchuria. Millions were necessary to develop the scheme and millions were lavishly expended to further the adventure. Russia poured into her Manchuria Railway schemes over 300,000,000 roubles, and another 250,000,000 roubles in

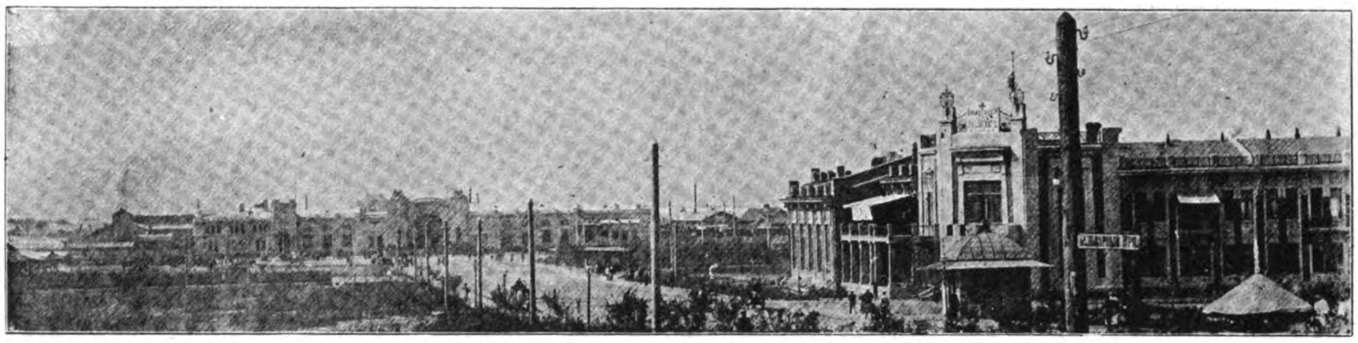


RAILWAY SHOPS AT HARBIN

CHINESE EASTERN RAILWAY, MACHINE SHOPS, HARBIN



MACHINE SHOPS OF THE C. E. RY. AT HARBIN



HARBIN: THE MAIN STREET LEADING TO THE RAILWAY STATION. THE OFFICIAL HOTEL AND RUSSIAN CONSULATE GENERAL TO THE RIGHT

erecting the cities of Dalny, Port-Arthur, and Harbin together with the fortifications and other permanent improvements. How much of this vast sum was actually expended no one will ever know. When the time came after the war for auditing the accounts, a convenient fire destroyed the building containing all the records, so the rendered figures had to suffice without comment.

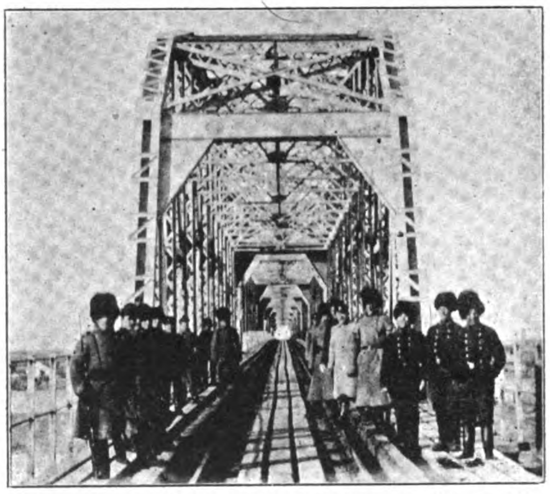
The Treaty of Portsmouth came as a surprise to Harbin. Another few months and the tables would have been turned and the dreams of Empire realized. For Harbin merchants it was difficult to realize that the end had come, and as the aftermath set in and the soldiers returned to their homes and business began to decline, they still cherished hopes of a bright commercial future. No systematic or determined effort had been made by the Russian merchants to secure the native trade, despite the efforts of the Banks and the authorities to encourage and assist this movement. It was much easier and more profitable to cater to the good-natured, pleasure-loving, spendthrift soldier, than to get out and build up a trade with the economical and impoverished native. The Bank and the Railway whose future prospects and success depended on solid native trade, catered to this element, but with only nominal success. Russian kerosene, oils, matches, sugar, cotton goods, and cheap novelties were the only items of any importance dealt in. The purchasing power of the native was small, and Northern Manchuria is sparsely settled, and the market even for these necessities was limited. So with the eventual withdrawal of the Russian army, and the departure of the swarms of adventurers, camp followers and women, the merchants were face to face with the worst that could befall them—a return to normal times, and no market. The best customers for the flour mills, the breweries, and vodka factories were gone. The natives prefer their own crudely ground coarse flour, they don't drink beer or vodka, so the main industries of the city found no market for their output. The theaters, bereft of their patrons, closed; the music halls followed, and with the departure of the extravagant female spenders, the jewellers and department stores lost their best paying trade. Houses that were at a premium shortly before were vacated, new tenants came not, and a decline in real estate value followed. The costly block of stores, constructed in the center of the town for the largest Moscow merchants remained unoccupied. The brick factories and saw mills closed for lack of business. No one wanted to build. The glass factory suspended operation. The flour mills were forced to close down. One brewery remained at work. The hotels were emptied of their patrons. The large official hotel was converted into the offices of the Russian Consulate General. And so Harbin at last came to a realization of the exact state of affairs.

The town to-day presents an appearance of premature decay. Grass grows in the streets, no smoke issues from the tall chimneys of the mills. The large and costly stocked department stores open for the day and only a casual customer appears. Theaters have closed. Only one or two cafés chantants invite the midnight pleasure seeker, in place of the previous twenty-six. The houses are out of repair and the plaster ornamentation of many of the large buildings has fallen away disclosing the naked lath, revealing the fact that the buildings in part were only imitation stone. The town is existing on the expenditures of the railway. The salaries of the employees maintain the few stores, and the awarding of a contract for supplies is eagerly anticipated by the merchants. The railways and the Bank are making strenuous efforts to renew a spirit of confidence and promote trade with the natives, but there is a lack of co-operation on the part of the Russian merchants. But powerful as they are, the Railway and the Bank cannot carry the load indefinitely. There must be an end. The last financial year of the Bank was closed without the payment of the customary dividend. The Railway is losing at the rate of 5,000,000 roubles per annum. The budget for 1908 was based on an estimated income of Rbs. 15,857,793: expenses (including Rbs. 625,388 interest on bonds) were Rbs. 19,265,110, or an estimated deficit of Rbs. 3,407,317. The actual deficit is, however, claimed to be in the neighborhood of Rbs. 5,000,000.

Yet there is apparently no sign of retrenchment. The railway administration building swarms with employees, and extravagance is still the order of the day. War prices continue, or at least charges are higher in Harbin than in any other port of the Orient. Hotel charges, droshky hire, rents, and the general cost of living is at least double the cost in Shanghai.

The outlook for the Chinese Eastern Railway as a profitable commercial venture is a dismal one. Heroic efforts on the part of the management cannot make trade unless they are seconded by the merchants and have a sympathetic market. The stimulus given to the bean trade in Manchuria by the opening of foreign markets for this product, presents an opportunity the management is taking advantage of to divert the trade to Vladivostock. The through passenger traffic over the line is, however, rapidly increasing, as the Trans-Siberian route is becoming more popular each year as the "Short way to and from Europe." In fact many Americans from Manila are being attracted to the Siberian trip, as the quickest way to reach the Atlantic coast ports. The comforts of the through Express and the excellence of the service, added to the economy in cost, and time, are having the natural result of popularizing the route amongst all classes of travellers.

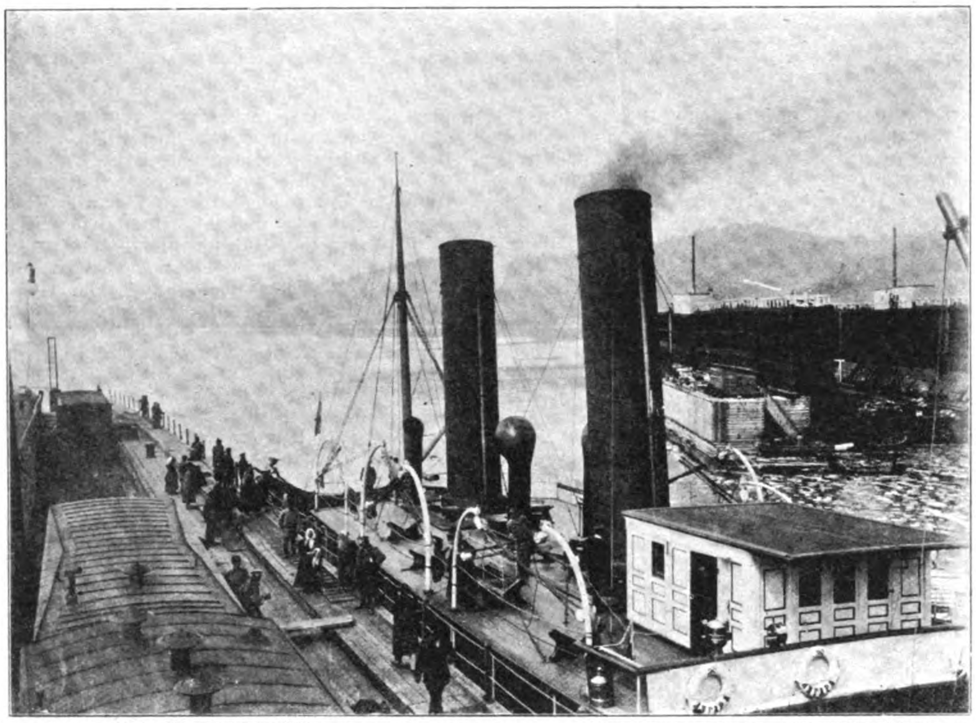
The building of the proposed Chinchowfu Tsitsihar line, in addition to the competition of the South Manchuria service will divert some of this through traffic from Vladivostock, but the Chinese Eastern will still secure their share of the trade, at their own terms. The construction of the future extension of the Kalgan line to Kiachta will seriously menace the passenger traffic on this road and even then the Russian Government who owns the road will continue to dominate the situation and impose rates to counterbalance the loss to the Eastern section of her Trans-Siberian system. The traveller will benefit by the reduction in time, but it is hardly probable that this will extend to a similar economy in cost. It has been rumoured that Russia is willing to sell the Chinese Eastern Road to China by the time the Amur line is completed, but the money must be raised in the country. The Russian valuation of the property at something like $85,000,000 gold, is of course excessive. If this figure was reduced to a reasonable basis of $40,000 gold per mile, the total of about $38,000,000 gold might be within the reach of the Chinese Government. In view of the immense importance of this line to China, to preserve intact her territory in the event of future hostilities between Russia and Japan and if there is any truth about the hoard of the Imperial Treasure within the Walls of the Forbidden City, it would seem that the Regent ought to gladly part with some of this unproductive wealth to regain ascendancy over one of his richest provinces. Russia's purpose in reaching the sea at Vladivostock can be attained by the Amur line to which construction she is committed, and if she still harbors any designs on China's integrity, she can always slice off a province or two far from the interference of other Powers along the Mongolian and New Dominion frontiers. And when the Kiachta Kalgan Line is completed, the approach to Pekin is also opened to her. The Amur Line will serve as a military line to the Primorsk within her own boundaries, and for all commercial business the Chinese Eastern Railway will remain as a short cut across. The latter road in the hands of the Chinese would be of no value, unless Russia consents to interchange of traffic over the Ussuri and Trans-Baikal sections. The construction of the Chinchow Tsitsihar line and the repurchase of the road from Russia, would restore China to full control of her provinces and act as a preventive against any rupture between Japan and her late antagonist, taking place on Chinese soil



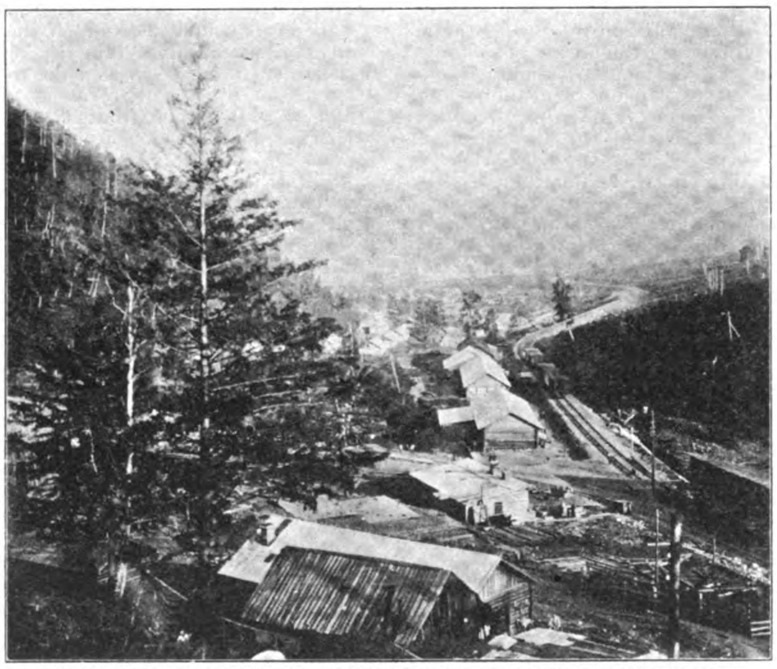
C. E. RY. BRIDGE OVER THE SUNGARI AT HARBIN

SOUTH MANCHURIA RAILWAY—THIELING STATION

KWANGTCHULIN STATION BETWEEN HARBIN AND KWANGCHINGTZE



TRANS-SIBERIAN RAILWAY.—THE ICE BREAKER AND RAILWAY FERRY STEAMER "BAIKAL." AND FLOATING DOCK



THE C. E. RAILWAY.—THROUGH THE KING-HAN MOUNTAINS

CHINCHOWFU-TSITSIHAR RAILWAY

The preliminary steps have already been taken by China to encompass her agreement with Japan and reach her northern frontiers by a railroad of her own, which will be so far outside the restricting provisions of the Peking Agreement that Japan can have no just cause for protest, from a commercial viewpoint, as being detrimental to the interests of the South Manchuria Railway. As in the case of the defunct Fakumen imbroglio, China, feeling her own weakness to carry her point, is reported as having entered into negotiations with a group of British and American capitalists to finance and construct an extension of the Imperial Railways of North China, from Chinchowfu northwards through Eastern Mongolia to Tsitsihar, the capital of Heilingkiang Province. Here surveys have been made for the Tsistsihar-Aigun line. This project when carried out will complete China's proposed Northern Trunk Line, place Peking into direct communication with her most northern frontiers, and in connection with the country to be served by the Amur Railroad. China is apparently determined to carry her point in regard to this road, and it is difficult to see what reasonable objections Japan can interpose. Commercially the South Manchuria and the Eastern Mongolian Line would hardly compete, as the country served could readily be made to support two or three lines, especially if the bean trade continues to increase in volume as it has the last two years.

Politically or strategically such a road would still be a menace to Japan's position in Manchuria, and in the event of future hostilities with Russia, or even with China, would materially weaken her position. The possibility of another struggle between Japan and Russia is always present, for Russia has signified to the world her future intentions by the building of the Amur Railway. Japan's answer is the ultimatum to China, in regard to the Antung-Mukden line, and forcing a new concession from China, for the Kirin-Hunchun Line. It is difficult to view the railway struggle in Manchuria from any viewpoint other than political.

With all existing Manchurian lines in the possession of Japan or Russia, China's right to build her own line to the extreme northern end of the province, is incontestable, as only by such a road under her own control could she hope to maintain neutrality in the event of a future conflict. There is no good reason why the scene of a future conflict between Russia and Japan should be in Chinese territory, unless the possession of that territory is aimed for as a result of the struggle. With the integrity of China insured by all the leading powers of the world, the construction of a purely Chinese trunk line through the disputed territory, is a strong factor for peace, and provides the only means for foreign powers to effectively come to China's aid, in the event of any infraction of this doctrine. With the proclaimed neutrality of China in such a conflict, the operations would have to be confined to the Maritime Province of Eastern Siberia, and the only effective means of safeguarding neutrality is by the construction of the Chinchowfu-Tsitsihar-Aigun Trunk Line.

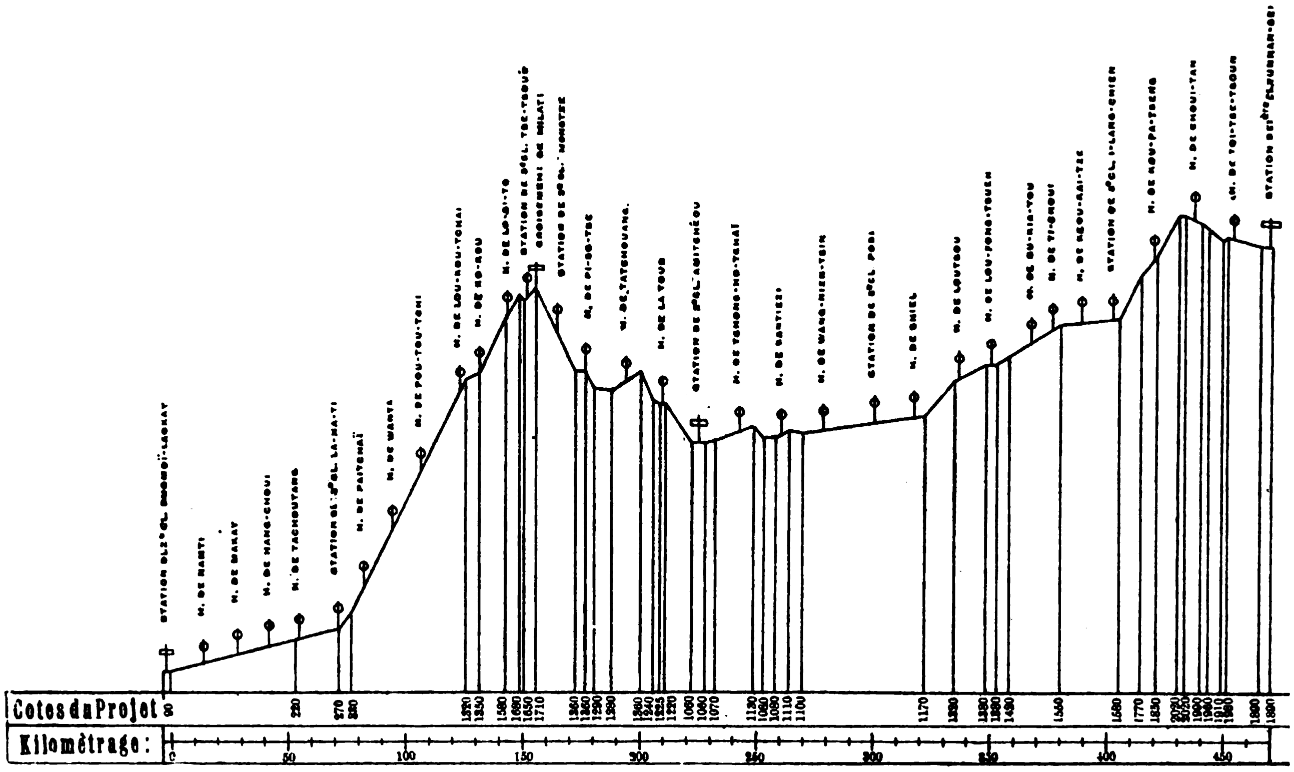
It would be folly for China in her present defenseless position to undertake such a serious enterprise, but with British and American capital to carry out the scheme, China effectively safeguards her interests and checkmates any designs on her territory.

The negotiations for the construction of the Chinchowfu-Tsitsihar Line have already called forth a notification from Japan that while she does not intend to oppose China's action, she will maintain her own rights under the recent China-Japanese Treaty. It is also reported that Russia has declared that if China persists in building the road with British and American capital, she may demand as compensatory advantages the right to the concession of the Kiachta-Kalgan Railway across Central Mongolia.

Recent reports from Peking are to the effect that the Board of Communications has already ordered the survey of the Kalgan extension across Mongolia to Kiachta, prompted by the Russian efforts to persuade China to permit her to build the line.

Interesting developments are sure to follow, and if Japan feels that her position is threatened by the Chinchowfu-Tsitsihar Line, or Russia seizes the opportunity to demand compensatory advantages, China will have only added to her troubles, and may precipitate another crisis in her affairs, into which Britain and America will be drawn. The Manchurian situation will then be definitely settled one way or the other for the infinite relief to all parties concerned.

THE YUNNAN RAILWAY



(*From Trade Report of the Imperial Maritime Customs*)

PROFILE OF THE COUNTRY BETWEEN YUN-NAN-FU AND LAOKAY

France conquered Tonking with the fixed idea of gaining ready commercial access to China throughout Yunnan province. This hope remained but a dream for years, but it is now an accomplished fact, despite short sighted fears and British rivalry in railway construction.

When the French railway from Tonkin to Yunnan was taken in hand, the British in Burma sought to offset it by starting a rival line from there into the province to secure commercial and political influence in South China. But the British line stopped short at the Yunnan frontier, and the French line held the field and has been completed as far as Yunnan, the first objective point.

"On the 9th and 10th April, 1898, an exchange of despatches took place between M. DUBAIL, Chargé d'Affaires of the French Republic, and the Tsungli Yamen at Peking, embodying the following Agreement: the Chinese Government concedes to the French Government, or to the French company whom the latter may designate, the right to construct a railway from the Tonkin frontier to Yunan-fu, the capital of this province, the Chinese Government having no further obligation than to surrender the necessary land for the line and its dependencies. These conventions are to cement and strengthen the ties of friendship which unite France and China. The French Government thereupon designated, for the construction and exploitation of the line from Tonkin to Yun-nan-fu, the Compagnie Francaise des Chemins de Fer de l'Indo-Chine et du Yunnan, a company which had been started by the leading financial establishments of France, and this company, in its turn, entrusted the work to the Société de Construction des Chemins de Fer Indo-Chinois. The alignment of the future railway was studied by the delegates of the French Government, and subsequently by the delegates of the Compagnie Francaise des Chemins de Fer de l'Indo-Chine et du Yunnan. The line starts from Hokow, on the border connecting there with the Tonkin line to Haiphong and its branches, and ends at Yun-nan-fu. The gauge of the line is 1 metre (3 feet 3 inches). Once the main line has been completed, and if the parties concerned deem it expedient, after an understanding has been arrived at, between the high provincial authorities on the one side and the French Minister and the Wai-wu Pu on the other, as to the mode of procedure, branch lines connecting with the main line may be constructed. According to the Agreement signed at Peking on the 29th October 1903 all engines (machinery), supplies (stores), and materials necessary for the construction and exploitation of the railway are to be exempt from Import Duty. The original survey resulted in a decision to follow the Red River as far as Hsin-hsien and then to continue along the valley of the Hsin-hsien River on to the Mengtsz plain; from here the line was to proceed by way of Lin-an, T'ung-hai and I-liang-hsien to Yun-nan-fu. A thorough study of this first plan revealed many technical difficulties, and, after full consideration, the company, in November 1902, submitted an alternative scheme, according to which the line leads from Hokow through the Nam-hsi Valley on to the Mengtsz plain, and thence by way of A-mi-chou to Yun-nan-fu. In January 1904 the French Government gave its sanction to this new *tracé*, and shortly afterwards work was started along the whole line. The total length of the line from Laokay to Yunnan is about 465 kilometers or 287 miles, and from Laokay to Haipheng 248 miles, a total distance from the sea to Yunnansen of 535 miles. The main engineering difficulty was the 1600 meter ascent from the level of the Red River to the plateau, and the cutting of a bed along the almost vertical walls of the Namti River valley.

Before the French Government finally sanctioned the new tracé, a commission of mining engineers was sent into the province to study the question as to how far the altered project would affect the facilities for the transport of the output of the mines which, at one time or another, would be exploited; the result of their examination showed that no difference was apparent, the one project being as favorable as the other for the conveyance of the mineral products. Manifold and varied have been the difficulties of the company, and among these, notably, the scarcity of labor which prevailed at the outset along the entire line, and in addition, the unhealthy climate in the lower region of the Nam-hsi Valley. There are nearly 140 tunnels, the longest of which is about 600 metres; a large number of viaducts, bridges, and galleries have also been constructed.

The hardest task of all was that of laying the rails up the valley of the Nam-ti River, a fever stricken tract with a climate so deadly that the country is almost without inhabitants. This fatal valley has swallowed up millions of treasure, and multitudes of human lives. The number of coolies who perished there in laying down the rails, is set at forty thousand.

The people on the table-land have a deadly fear of this valley. Neither reward nor high pay can tempt them to set foot there. Labourers had to be recruited from distant parts. Coolies from North China could not stand this valley of death. Only Canton Chinese and low country Tonkinese could be found to brave the climate.

The superintending staff—almost all of them Italians—stood the climate well and made high profits—estimated so far at 30 millions of francs. Very few Frenchmen are employed on the line.

Leaving the inhabited section of Tonkin at Yen-be, the line runs to Mongtse over a distance of 300 kilometers (160 miles) through a country which is a wilderness and will ever remain so—being unhealthy and barren.

The original estimate for the cost of the line was Francs 101,000,000. A construction company was organized with a capital of 12,500,000 francs and received a government guarantee of 3,000,000 francs for 75 years, which produced a capital of 76,000,000 francs. The Tongking Government subscribed the balance of 12,500,000 francs to meet the required capital estimate.

The enormous expense of building the line through the Namti Valley, and the unusual amount of cutting and tunnelling ate up all the original funds of the concessionaire company, which collapsed last year for lack of money. For awhile French opinion endeavored to shift the responsibility of this excessive cost on to the shoulders of the Chinese Government, alleging that the stoppage of work was due to the desertion of the Chinese laborers from fear of the revolutionary bands and that when the laborers had quit, the engineers were also

forced to suspend. But the truth soon came out, as the matter was taken up in the French Chamber of Deputies, and a resolution offered providing for the supply of sufficient funds to complete the work. In January of this year the French Foreign Affairs Committee presented its report upon the bill authorizing the government of French Indo-China to raise a loan of $10,317,000 gold in order to meet the expenditure charged to the budget of that dependency in connection with the construction of the Yunnan Railway. In consequence of the financial and other vicissitudes of the enterprise since the concession for building the railway was granted by China eleven years ago, and various alterations in the plans, the initial cost of the work will amount to $32,216,000, as compared with the original estimate of $18,687,000. Of this increase in the estimated cost a sum of $10,025,000 is to be borne by the colony and the remainder by the company to which the concession has been assigned. The hope was expressed that work would be superintended with greater care in the future in order that the recurrence of costly errors be avoided. The constructors reached Mengtsze last April and with the opening of this section it became possible to conduct traffic over a considerable portion of the line. The line has since reached Yunnan-sen.

The loan for $10,317,000 (Fcs.53,000,000) is guaranteed by the State, bears interest at 4%, and is redeemable in 65 years. To this annual charge of $412,680 gold (Fcs.2,120,000) must be added the interest on the bonds amounting to francs 10,488,962, which were issued by the concessionary company and are equally guaranteed by the Colony and the States, is francs 506,306. Thus the total charge will not be more than about francs 2,630,000 ($526,000 gold).

"It is very unlikely," according to the report of the Budget Committee of the Paris Chamber, "that the State will be called upon to make good its guarantee. Though Indo-China is not yet out of a social and political crisis, the Committee considers that a wise administration will successfully achieve this, and expresses every confidence in M. Klobukowski without dissimulating the difficulty of his task. They report with satisfaction that from the financial point of view the position of the colony has again become healthy and even good. The figures for 1907 show a surplus of $4,179,000, and those for 1908 a surplus which will very probably exceed $3,500,000. Beyond this, the Tonkinese section of the Haiphong-Yunnan line has already entered upon a dividend-paying era, contributing f.400,000 to the colony in 1908. It is therefore clear that the new loan charges authorized are far from surpassing the financial abilities of Indo-China."

According to optimistic French reports "the commercial outlook of the Yunnan Railway is very bright. The traffic in European goods on the opened sections of the line is increasing every year. It only needs reasonable charges for the railway to draw to itself all the trade between Yunnan and the Tonkin coast.

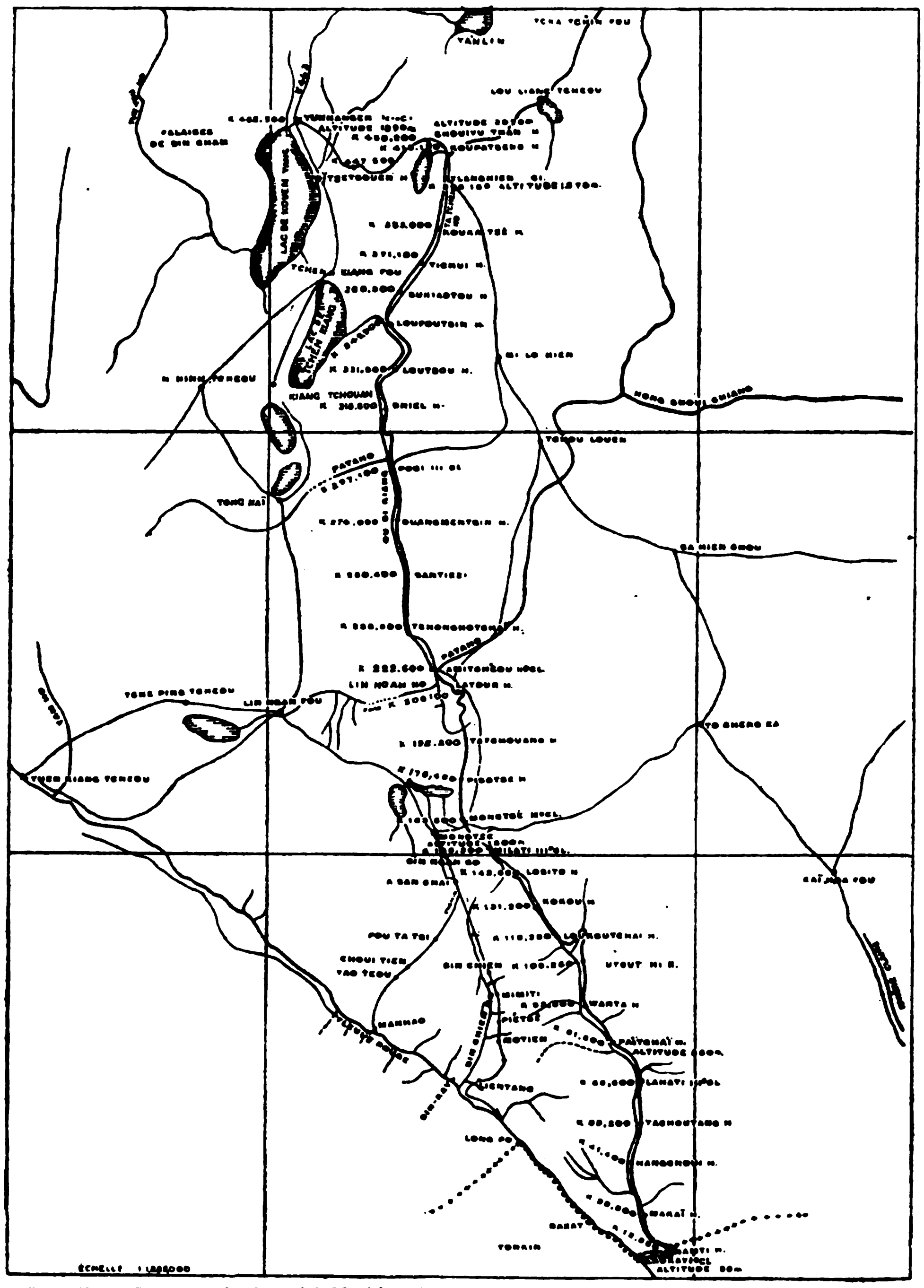
"The trade of Yunnan consists mainly in trafficking opium and tin for European articles—chiefly cotton goods. The tin export amounted, in 1907, to 48,710 piculs, against 45,146 piculs, in 1906. The tin is shipped to Hongkong, where it finds ready sale.

"Of the exports from the province, tin forms 81 per cent., opium 18 per cent., and smaller products one per cent.

"Exploration and research show clearly the value of Yunnan for trade purposes. It has a fruitful soil, and a healthy climate. Rice produces three crops a year. Sago and maize are grown where rice is unsuitable. Iron, silver, copper, tin, zinc, coal and gold are found in large quantities.

"The Yunnanese are a peaceful and industrious people, and number over eleven millions, but they are scattered thinly over a vast area. The completion and extension of the railway will, however, draw a flow of immigration from the valley of the Yangtsze River thither."

But there are others who maintain that the line will never pay unless it is extended on northwards to Szechuen Province with its 50,000,000 inhabitants, thus making Haiphong, which is 300 miles nearer than Shanghai, the port for this rich territory. Most business men in



(*From Trade Report of the Imperial Maritime Customs*)

MAP OF THE COUNTRY BETWEEN YUNNAN-FU AND LAOKAY ON THE CHINA-TONKIN BORDER, SHOWING ROUTE OF THE YUNNAN RAILWAY

Tonkin frankly admit that if the line stops at Yunnansen its upkeep will be a very heavy burden indeed—even though the French Government shoulders it all. The outloook is the more serious from there being not the least chance of the Chinese Government buying up the railway, of which there was once a prospect.

The attitude of the Chinese Government against further extensions of a political line practically destroys any hope of its prolongation northwards, except under the condition that France surrenders her exclusive rights, and permits the line to be controlled and operated by China. China has the whiphand, and unless force is applied, there is little hope of the railway being a commercial success.

With the completion of the railway, vague reports are coming from Yunnan about the military activity on the part of France. A recent native report reads:—

"Lately the French have been sending officers to Yunnan and Kwangtung to make maps of the important strategical positions and smuggling arms and ammunition to all points along the Yunnan Tongking Railway. The Wai wu-pu has now requested the French Minister to instruct the French authorities in Indo-China to recall the military spies and remove the arms from the Chinese territory. The fact that the French are increasing their Army in Indo-China is rousing the greatest suspicions in the minds of the members of the Wai wu-pu as to their object and they are negotiating with the French Minister for a definite agreement that neither China nor France shall station troops along the Yunnan-Tongking Railway and that the Chinese section shall be guarded by the Chinese police only. The Board has at the same time wired the Viceroy of Yunnan to train the soldiers in his province in case of emergency."

So here again are laid the seeds for future trouble to China over a commercial concession originally given up to cement the ties of friendship with France.

Here we have a meter gauge road 535 miles long, from Yunnan to the sea, with enormous engineering and labor difficulties to overcome built at a cost of $32,216,000 or an average cost of something over $60,000 per mile. Aside from the labor troubles, the road compares in a way with the Chinese Standard gauge Kalgan line, rising 2200 feet in less than 100 miles, built at a cost of $50,000 per mile. Of course this is only a general comparison, but the figures assist in arriving at an appreciation of the Chinese ambition to do their own work, free from foreign interference.

IMPERIAL PEKING-HANKOW RAILWAY

PEKING-HANKOW LINE.—THE YELLOW RIVER BRIDGE

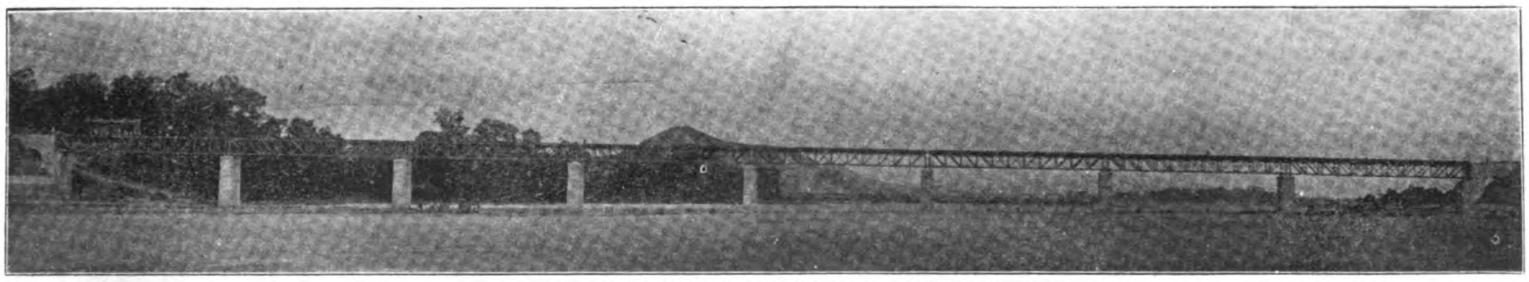
Of all the enterprises in China in which Belgian capital has taken a share, the most important is the Peking-Hankow Railroad.

This line is 1,200 kilometers long and constitutes, with its future extension from Hankow to Canton, the Great Central Railway of China, which will one day form the trunk line of all the other railroads of Central China, and which will link the Gulf of Pechili with the Gulf of Tong-King—2,500 kilometers—passing through Hankow, the largest port of the Yangtsze Blue River, which is situated at the junction of this waterway and the Han River.

The Hankow-Wuchang-Hanyang agglomeration—the knot of the entire Chinese system of railroads—had formerly 6,000,000 inhabitants, but there remain now no more than 2,000,000 since the terrible Taiping Rebellion which desolated this region. Owing to her unique location on one of the finest rivers of the world, in the center of a valley with a population of 100,000,000 people, nothing, however, should prevent Hankow from returning to her ancient importance as a trade center. The same may be said of other cities as railroads replace the almost extinct imperial highways and the obstructed canals.

In 1889, Chang-Chih-Tung, then Governor of Canton, formulated a clear project in a report to the emperor at Peking. His proposals were considered as most valuable and an imperial decree sent Chang to the viceroyalty of the Two Hus of which the capital (Wuchang) and Hankow face each other on opposite sides of the Yangtsze. His special mission was to preside over the construction of the southern portion of the Peking-Hankow line, while Li-Hung-Chang, the Viceroy of the Province of Pechili, was looking after the final construction of the road in its northern portion. Chang-Chih-Tung must have on this occasion felt very keenly the great difference there is between the completion of a colossal undertaking and its execution. Years passed by, and the clever viceroy saw no possibility whatever of how to carry out his stupendous project. He knew well that the creation of such a railroad had, besides its economic conclusions, a very great political complexion. He knew that if China wished to prevent foreigners from possessing a new and dangerous weapon, she must construct her future railroad absolutely with her own resources. But to do this money was necessary, and it was impossible to obtain money in China.

About the end of 1896, Chang-Chih-Tung and Li-Hung-Chang caused the Tsung-li-Yamen to understand that the latter had much miscalculated the resources of China when it proposed that this national enterprise should be carried out without the help of foreign money. The two promoters of the project received authority to grant the concession to a company of the "most favored country." The only hope of carrying out the scheme was to secure the assistance of foreign enterprise. Several com-



PEKING-HANKOW RAILWAY.—240-METER BRIDGE

panies were organized and submitted proposals, and finally these simmered down to the consideration of a proposal from a group of American financiers, one from British capitalists, and another from the Belgian Syndicate. At this time Taotai Sheng Kung Po was director-general, having been placed in charge by Imperial edict, in 1896, of the projected line.

When an American Syndicate represented by Senator Washburne sent out a survey party under the direction of Captain Rich, it looked as though the concession would go to America. This party, starting in 1897, completed its work the following year and submitted maps and estimates of cost. H. E. K. S. Low, now managing director of the Tientsin-Pukow Railway, was a member of this survey party. With the conclusion of the survey and the presentation of the plans and estimates negotiations were resumed with the American group.

It might be said here that the American group was actuated in securing the concession on purely business grounds, free from any political designs on Chinese territory, and held out for terms which the Chinese were not willing to grant. While the negotiations were hanging fire, a Belgian Syndicate appeared in the field and proposed to accept the concession along lines which the American Group was not ready to accede to. The result was that the Chinese closed with the Belgians.

It is not my purpose to enter into any of the intricate political questions involved in this concession. These have been fully treated in an excellent work on "Railway Enterprise in China," by Mr. Percy Horace Kent, a book that everybody interested in Chinese Railways should read carefully.

The American interest lost out to the Belgians through ignorance of China and things Chinese. The former were bent on securing all their rights preliminary to the agreement, the latter accepted the Chinese view of what ought to be, signed the agreement, and then arbitrated the differences afterward. Sheng King Pao in his memorial to the Throne said that the American terms were "too hard."

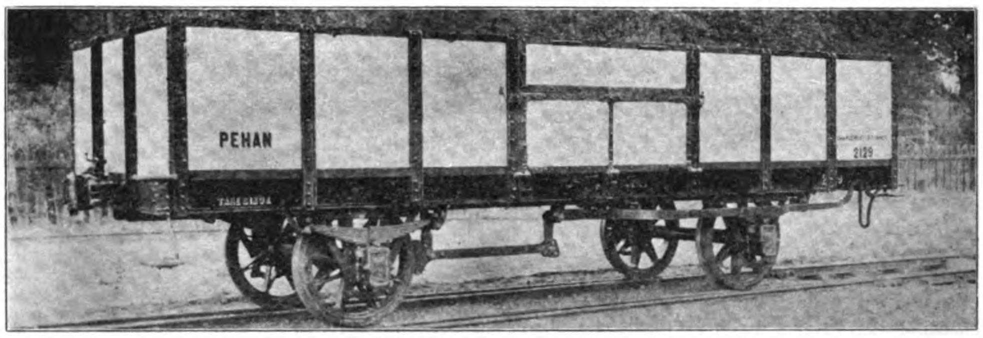
He then turned towards Belgium, "a very wealthy, small country, whose power is negligible," as they said in their report of December 1897. They chose this country, guided by the above political considerations.

On another side, while the negotiations were taking place, M. Gérard, minister for France at Peking, thought the moment had come to remind the Tsung-li-Yamen about Article 7 of the Franco-Chinese Treaty of June 9, 1885, which stipulates that "in the construction of railroads, China will use all her influence to attract French industry." The political power of France was, for the Belgians, a precious auxiliary to protect, when necessary, their involved interest. The result was, therefore, a fusion of Belgian and French capital in one company.

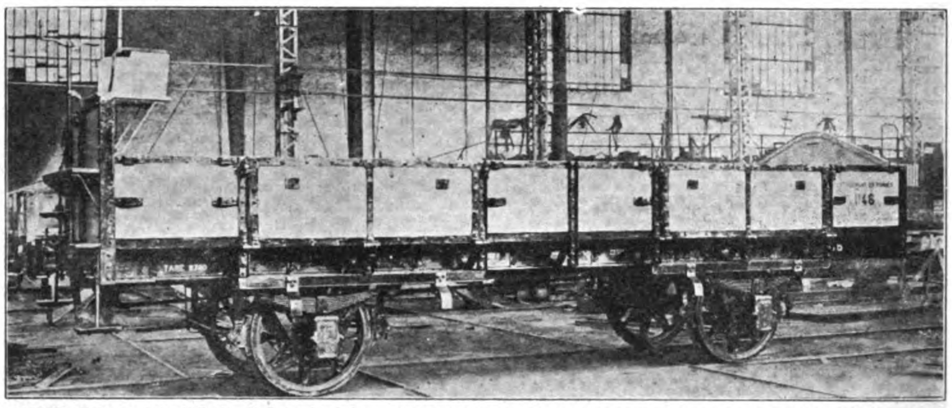
Since 1897, a preliminary contract had been signed between the Chinese Government and the Franco-Belgian Syndicate for the construction of the railroad, and on June 26th, 1898, despite a rather strong opposition from Great Britain, the Belgian minister at Peking, Mr. Joostens, obtained the definite concession of the road for the *Société d'etudes de chemins de fer en Chine*.

The Chinese say that the American and British proposals were too precise in regard to certain stipulations or appeared so to Chang Chih-Tung and Sheng Kung Pao, and especially so in view of the fact that the Belgian Syndicate were willing to meet every wish of the Chinese Government without question. The result was that the agreement between the Belgian Syndicate and the Chinese Government was signed in June 1897 by Sheng Kung Pao. The Syndicate soon found, however, that in order to financier the project in Europe, it would be necessary to secure improved terms from the Chinese government.

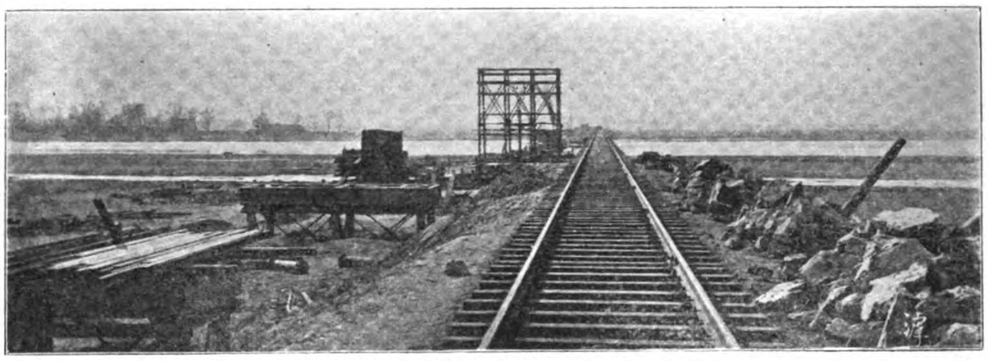
In this connection it might interest the readers to know the nature of the contract that linked the Tsung-li-Yamen to the Franco-Belgian Syndicate just mentioned. The Manchurian system of railroads had been built by a Russian company, and the German system by a German company. Both of these companies had been



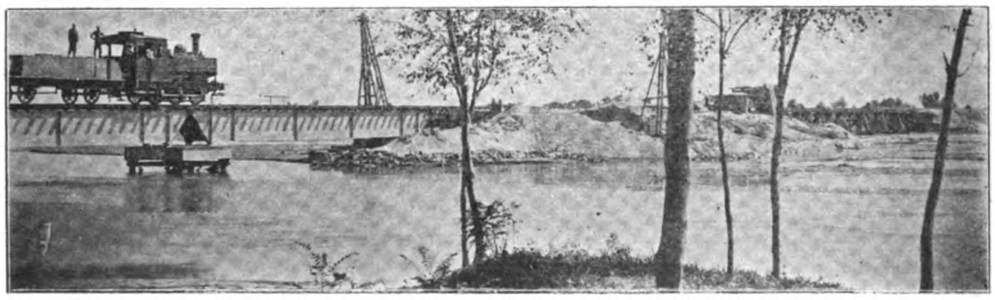
PEKING-HANKOW RAILWAY.—BELGIAN GOODS WAGON



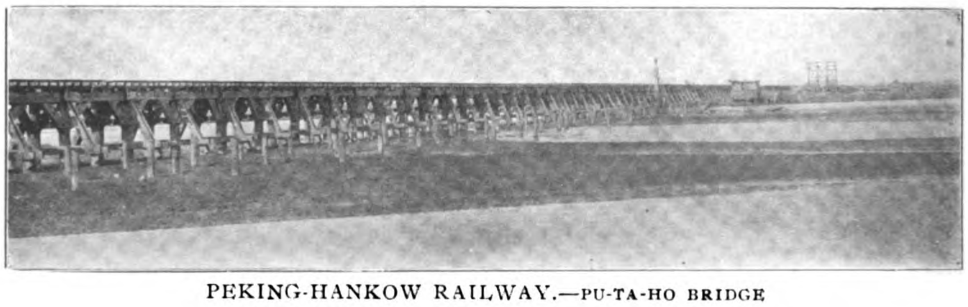
PEKING-HANKOW RAILWAY.—LOW SIDED CAR FROM BAUME MARPENT, BELGIUM



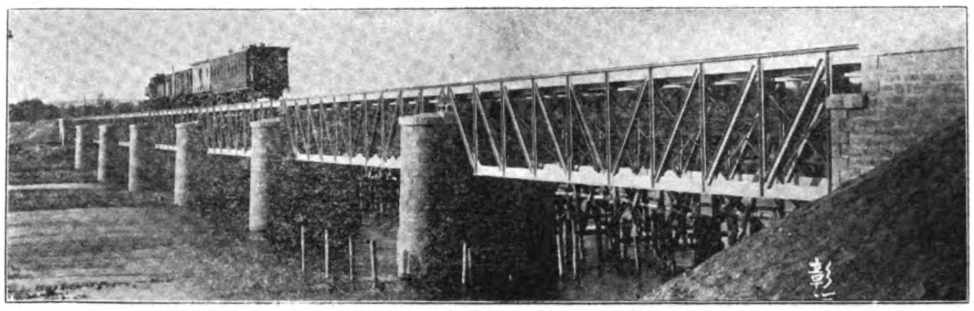
PEKING-HANKOW RAILWAY.—BRIDGE OVER TAO-HO



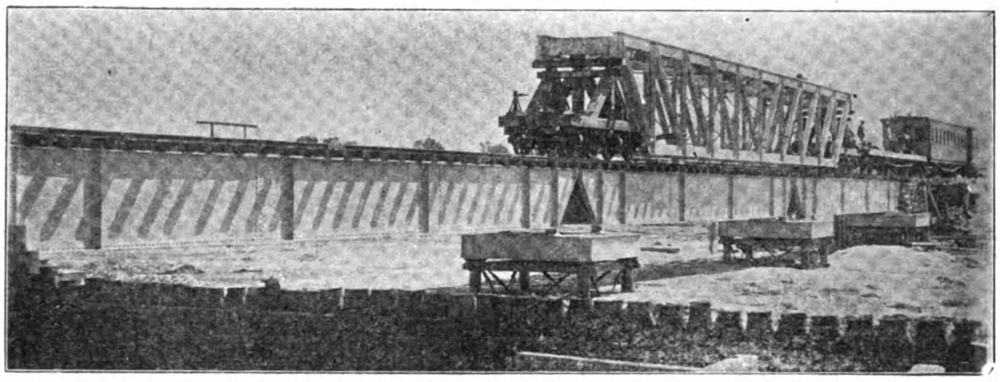
PEKING-HANKOW RAILWAY.—BRIDGE NO. 5 OVER THE SHA-HO



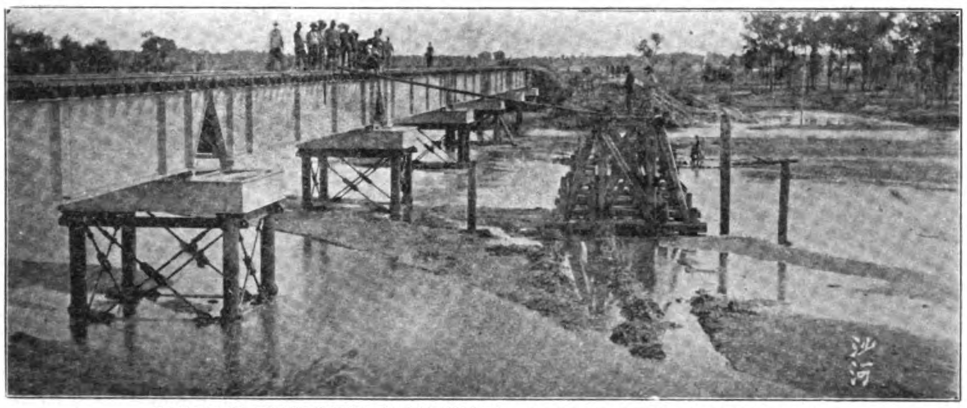
PEKING-HANKOW RAILWAY.—PU-TA-HO BRIDGE



PEKING-HANKOW RAILWAY.—BRIDGE OVER THE ICHANG-HO



PEKING-HANKOW RAILWAY.—CONSTRUCTING BRIDGE OVER THE SHA-HO



PEKING-HANKOW RAILWAY.—BRIDGE OVER THE SHA-HO

created at the risks and perils of the concessionaries, without any guarantee from the Chinese Government. It was altogether different with the concession granted to the Franco-Belgian Syndicate, which obtained not only the support of Chinese Imperial Company of Railroads, conducted by Chang Chih Tung, but also the official patronage of the Peking Government, which gave it financial support by working out the following combination:—

In order to facilitate the operations of the contracting company, China decided to issue a state loan. The specifications having been accepted and the amount to be spent approved by competent authority, the Chinese Government remitted to the syndicate bonds at 90 per cent sufficient to cover the expenditures decided upon. The syndicate had only to negotiate these bonds. The money obtained by this operation constituted the capital with which to build the road for the Peking Government, the contracting syndicate receiving as remuneration for its trouble 20 per cent of the net profits of its undertaking. Such was the ingenious mechanism which served as a basis for the convention concluded, in 1898, between the Chinese Imperial Company of Railroads and the syndicate. It presented this considerable advantage that the concessionaries had, in reality, not to trouble themselves about the formation of a construction capital; they had only to secure sufficient credit in order to convert into money their Chinese paper. It was thus that in March, 1899, a loan amounting nominally to 112,500,000 francs, called the 5 per cent Chinese Loan of 1898, was issued at the same time at Brussels and in Paris. The transaction seemed even then so brilliant that the loan, in Paris alone, was covered ten times over.

The loan was to be amortized within twenty years after 1909. The Chinese Government were given the right to repay the loan in or after 1907, thereby cancelling the agreement. The Imperial revenue and profits of the railway were made security for the loan and the financial arrangements were placed in charge of the Russo-Chinese Bank. In this connection, there is every reason to believe that French and Russian influence combined to the furtherance of the Belgian Syndicate's interests during these negotiations with the ultimate purpose of securing a link in the Peking-Hankow for a railway through the empire. A proposal was made by the China Association that the British Government should guarantee a loan covering the construction of the line in order to checkmate Russia and France. These efforts were of no avail. The Belgian Syndicate secured a working agreement covering a period of 40 years with full control of the line. When the loan was floated the fact that over three-fifths was subscribed in Paris confirmed the belief in the injection of Russian and French influence. And it was about this time that Russia renewed her efforts to secure a concession for a railway from Peking to some point on the Siberian line, but without success.

Surveys and Commencement of Construction.—While the negotiations were going on, Chang Chih-Tung had already had the first surveys and drawings made based on the report and estimate secured from the American Engineer, Capt. Rich. Previous to 1899 and before the Belgians took over the work of construction, the Imperial Railways of North China had surveyed the line south from Lukouchiao to Paotingfu under the direction of Mr. Kinder and Mr. T. J. Bourne in 1896, and the work practically completed. The road, for a short distance from Hankow, goes along the Yangtsze, then traverses the Hu-pei Plain. From Honan-Chau—at the 153d kilometer post—the line zigzags between steep hills forming scenery to be compared with the finest Japanese landscapes. After Sinyang, it traverses another charming plain, a little before reaching the Hwang-ho (Yellow River), where is erected on the summit of a hill a temple consecrated to the divinity of the river.

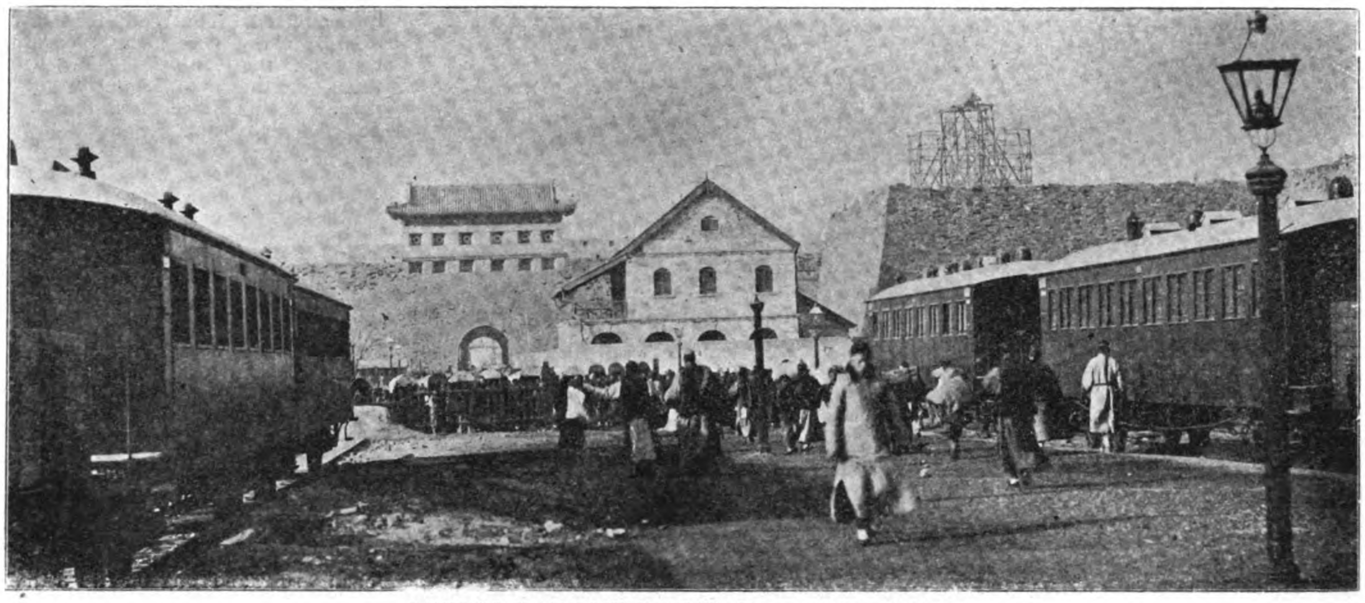
Work was begun in 1899, simultaneously on the Peking terminus and on that of Hankow. It was very actively carried on under the direction of the efficient Belgian engineer, M. Jean Jadot, as chief engineer of the Pei-Han. It was necessary to build a great number of bridges, some of which reach a height of 420 meters.

Great Yellow River Bridge.—At the beginning of December, 1904, on the Hankow side, rails were laid up to the Hwang-Ho River—500 kilometers. Across this waterway the gigantic Hwang-Ho River bridge has been constructed. This structure is 3010 metres long. The contruction of this bridge was a unique feat in engineering and one on which the eyes of the engineering world was earnestly fixed. It is about 6.25 meters above high-water level, and is of steel throughout, the massive girders being supported on sets of screw-driven tubular piles. The steel piles were screwed into the bed of the river by means of hand capstans manned by squads of coolies. In fact all bridges are of steel and like construction, while the approaches and other masonry work are of concrete. The bottom end of each pile has a tooth point with a large inclined blade above it, not unlike the tip of a corkscrew. To each point was clamped an enormous grooved pulley, around which was wound a wire hawser. One end was led to one of the capstans, and then the coolies heaved away and the work of screwing began. The rotary motion of the piles, with the corkscrew blade, naturally screwed the pile down into the mud till the pulley was level with the platform on which the workmen were standing. When the pulley reached this platform, another length of pile was bolted together, the pulley raised to the upper flanges, and the screwing resumed. When the piles had been screwed to a sufficient depth, say 12 to 15 meters, the water was pumped out from the interior. The pile was then filled with concrete. Wooden piles were then driven around the current side of the piers in the shape of a triangle, with the points to the current, as a protection to the structure. Huge beds of tree branches, lashed together with wire, were then sunk around the steel piers, and on these beds hundreds and hundreds of tons of rock were thrown. This was reckoned to give more solidity to the river bed where the piers were driven, and possibly prevent the river washing away the foundations, if such the shifting bed of the river can be called. The steel piles were placed in sets of four, six, eight, and ten, and each pile is joined by stanchions and girders of great strength, and finally each set of piles is spanned by an enormous girder on which the rails are laid. Half of this bridge was built in France, the other half in Belgium.

The river bed is one gigantic quicksand and during the construction of the bridge many piles were sucked under as well as platforms supporting machinery. Breakwaters of stone have been built along the banks of the river to prevent the undermining of the bridge foundations, and either end of the structure is protected with stone-faced dykes to prevent the water washing away the dykes.

The Governor of Honan recently called attention to the state of this bridge. It seems that the stream is undermining the pillars supporting the bridge and the safety of the structure is threatened. Aside from this the bridge is said to be altering the current, so that serious trouble may be looked for. Two officials were sent from Peking to make a thorough inspection and carry out such relief measures as they may deem advisable.

The construction of the Peking section of the line went on apace with that of the southern section, and the conjunction was formed at the Hwang-Ho River bridge.



PEKING-HANKOW RAILWAY.—PEKING STATION

Roadbed, Tracks, Gauge and Rolling Stock.—The roadbed is well-built and solidly ballasted, over which the most powerful locomotives may run at full pressure. The gauge is the same as that prevailing in Belgium, and the rails were all submitted to a most severe test at Hanyang where they were mostly manufactured. These tests were those enforced by the Belgian Government for its railways. The weight of the rails is 37.6 kilograms per meter. The rolling stock is modern and plentiful, and some of the trains which run through from Peking to Hankow and *vice versa* are equal in appointment and speed to many similar trains on European lines. There are three classes for passengers, the cars for the 3d-class being open. The fare is about 3 cents. The rates for 1st and 2d-class are about 9 and 6 cents per kilometer.

During 1906 the net return per kilometer (0.62 of a mile) over the entire line was $2,065, United States currency. The gross receipts during 1906 were (converted on the basis of Mexican peso at $0.52) $3,945,760, of which $1,378,680 was from passengers, $2,489,080 from freight, and $78,000 from freight (service). The operating expenses were $1,320,280, leaving net receipts of $2,625,480. The interest on the loan at 5 per cent amounted to $1,136,720, the interest on Chinese loan and bonus to $270,-400, leaving a gross profit of $1,218,360. From this was deducted $121,836, as 10 per cent for reserve fund, and a net profit of $1,096,524 remained. This makes the coefficient of exploitation 30.68 per cent.

The percentage of expense in the central administration was 11.39; exploitation and operation, 19.57; traction and materials, 46.38, which was high owing to cost of coal; tracks and works, 22.66. The number of 1 ton (2,204 pounds) kilometers was 266,329,358; average run of 1 ton, 150; average return of 1 ton, $1.40; average return of 1 ton per kilometer, $0.0092.

The net profits of the line in 1907 amounted to about $2,000,000, and these handsome returns decided the Chinese Government on exercising its right to repurchase the road according to the provisions of the agreement. The Concessionaires were entitled to 20% of the net profits of the undertaking during the currency of the loan, but the Chinese Government was entitled to redeem the loan in September, 1907, and annul the agreement with all further participation on the part of the concessionaires in the profits. The situation was forced on the Chinese Government as a purely business proposition considering the great future value and profits of the line. It was better to pay, say £225,000, being 5% on the loan of £4,500,000, than to pay 20% of the annual profits to the Belgian Syndicate.

In view of the criticisms directed against H. E. Sheng Kung-Pao for the awarding of the concession, the provision which gave the Chinese Government the right of redeeming the line prior to the commencement of amortization in 1909 reflects great credit for shrewd foresight.

"The line was constructed as cheaply as possible, and this was done deliberately with the intention of making it possible to earn dividends as soon as its construction was completed," says the *Shanghai Times*. "This was considered a wiser plan than to spend so much on the construction of the line that it would be impossible for it to pay dividends.

"Careful estimates state that, after allowance for the charges of running expenses and interest, the line will repay the cost of its construction within fifteen years. During this time, the roadbed can be improved, better station houses built, and more comfort provided for passengers."

Negotiations were entered into with the Belgian Syndicate with a view to issuing a new loan to redeem the old one, secure absolute possession of the line to the Chinese authorities and eliminate the payment of the great percentage of profit. These negotiations were successful and on Jan. 1st, 1909, the management of the Pei-Han line was taken over by the Chinese authorities at Peking.

The capital of the Peking Government for the line between Lukaochiao and Paotingfu is Taels, 5,620,000 and the loan from Belgium is Francs 125,000,000 and the loan to redeem it Francs 50,710,000. The Revenue for the year 1908 was about $9,970,000. The expenditure for running the trains $3,620,000; for the works about $880,000 and $175,000, the price of rolling stock paid out of the original loan now paid back. The interest paid out is about $2,824,000 and also the sum of about $408,000 paid to the Board of Finance as interest on the capital for Lukaochiao and Paotingfu line. The profit made in 1908 is about $3,117,000 but after deducting the twenty per cent interest to the Belgian syndicate and also the reserve fund there remains the sum of $2,244,000 as net profit.

The Chinese Government promised the Belgian Syndicate an extra bonus as soon as the accounts of the Peking-Hankow Railway were audited by a commission consisting of the representatives of the Chinese Government and the Belgian Syndicate.

A special bonus of $141,000 has recently been paid over to the Syndicate out of the profit account. On the payment of that bonus, Belgium's connection with the Peking-Hankow Railway ceased entirely.

The president of the Board of Posts and Communications has reported that to develop the railways would require the sum of Tls. 15,000,000 during the next three years over and above the net profits from the railways. The most important and largest item is that for the building of the four branch lines of the Peking-Hankow Railway (from Tingchow to Tanghsien, the North bank of the Huangho to Muhlan, Yencheng to Chou Chia Kow, and Matauchen to Wangkintien); and the construction of the line from Hwo Hsiang Chen to Yuchow will cost 3,600,000 taels, besides the money required for the new carriages, hotels and stations, and for acquiring and working coal mines. His Excellency Hsu, concludes that if the above things are to be done a foreign loan is absolutely necessary.

At about the same time the Board of Posts and Communications reported to the Throne that from Nov., 1907, to the end of the 34th year (Feb. 1909) the Peking-Hankow, Chengting-Taiyuen, Pein-loh, Taokow-Chinghwa, Shanghai-Nanking and Canton-Kowloon Railways have altogether cost £3,750,000 and Tls. 29,646,100 odd. The profits of the Peking-Fengtien and Peking-Hankow Railways and interest on the money deposited in the banks amounted to Tls. 11,705,000 and the sums of £3,760,000 and Tls. 18,250,000 odd were borrowed from the Board of Finance, the Ta Ching Bank, the Hongkong and Shanghai Banking Corporation, the Bank of Indo-China and the Bank of Communications. The balance in hand was therefore Tls. 308,900 odd which, however, has since been spent.

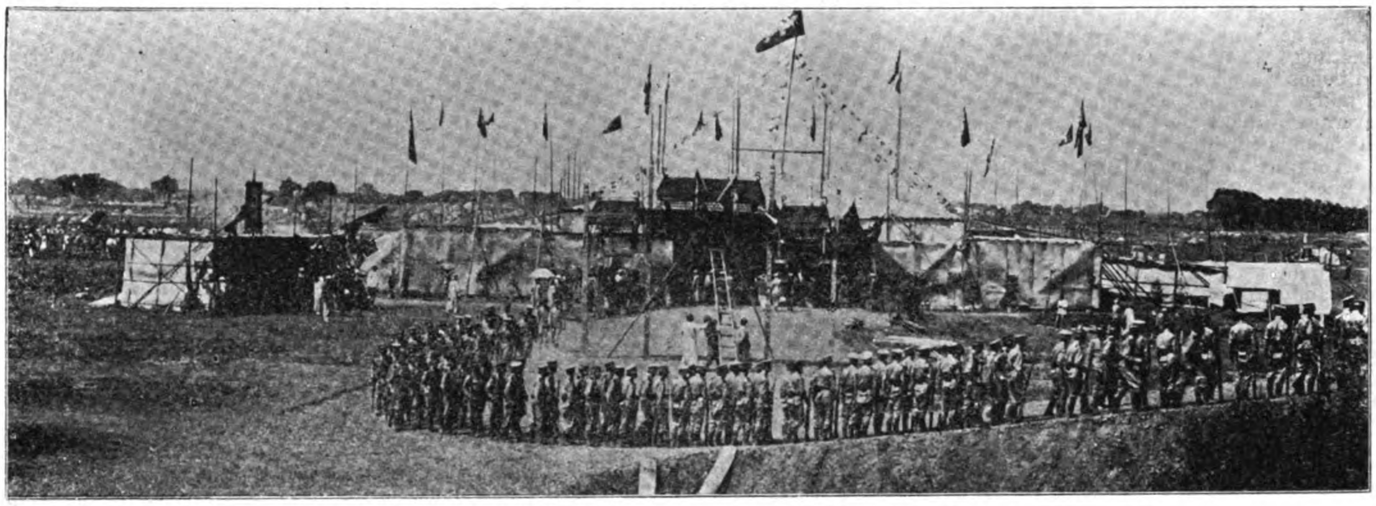
So if the proposed improvements are carried out further further loans are necessary.

THE SHENSI RAILWAY

Continuing on westwards from Tingkuan to the provincial capital of Shensi (Hsiangfu), it is proposed to construct a line with native capital. This province, however, has not taken kindly to railways and it may never be built if provincial funds are relied on for the enterprise. Much talk has been indulged in, some surveys made, and it is reported that two Japanese engineers have been engaged to superintend the work. However, the native investor don't know anything about railways, and like his brothers in other parts of the Empire entertains a reluctance to hazard money in enterprises under official control. The officials propose to build a trial short line in the province to see how a railway works and will employ horses and mules for awhile, instead of steam, until the Peinlo Road is brought up to Tungkwan. Any old towns will do to connect up and set things moving but strange to relate the native investor is still shy about placing money in a scheme of such doubtful advantage. But this transition stage can only last a short time, as the Central authorities at Peking are keenly alive to the importance of the scheme to link Hsianfu up with the Peihan Railway and bring it into closer touch with the capital, and if the province will not come to time, a foreign loan will sooner or later be floated or the road built from the profits of some working government line.

IMPERIAL CHINESE TIENTSIN-PUKOW RAILWAY

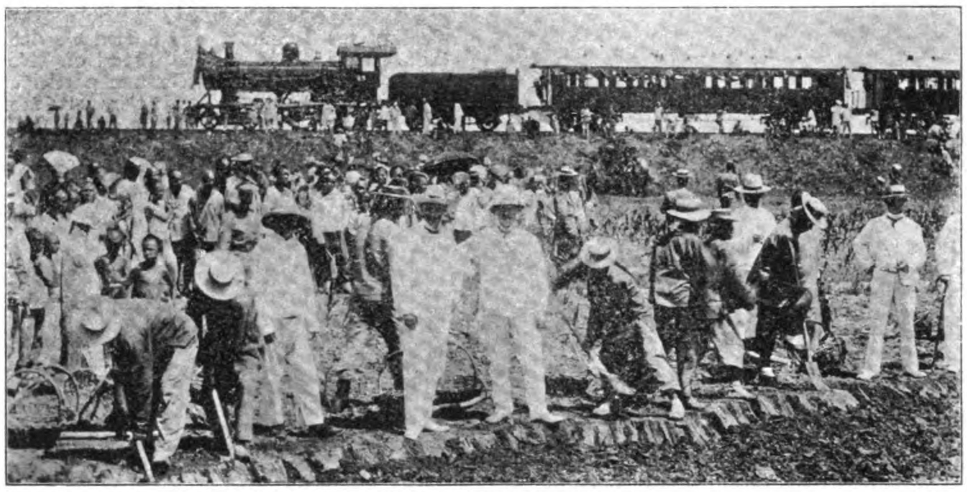
NORTHERN SECTION



TIENTSIN-PUKOW RAILWAY. (NORTHERN SECTION).—OFFICIAL OPENING CEREMONIES

The original concession for this railway, from Tientsin to Chinkiang, was granted in 1897 to a Chinese by the name of Yung Wing (with permission to enlist the aid of foreign capital. Yung entered into negotiations with British and American capitalists for a loan, but the occupation of Kiaochao by the Germans, together with the special railway privileges in Shantung ceded to them by China, effectively blocked further hope of connecting Tientsin with the Yangtze through Shantung, without German participation. The contract entered into by Yung Wing for a loan of $27,500,000 gold was therefore cancelled, as there was no way of getting around the German preferential rights in Shantung, or of altering the route to avoid passing through that province.

In 1898 Germany and Great Britain arrived at a satisfactory agreement in regard to their railway policy in China, the former agreeing to confine activities to the Hoang Ho valley, and Great Britain to the Yangtze, and at the same time a working arrangement was formulated for the financing and construction of the Tientsin Yangtze trunk line, in which Germany would share to the extent of such part of the line as traversed her sphere of influence, and Great Britain would take up that part from the southern boundary of Shantung to the terminus at Chinkiang. Owing however to the Shanghai-Nanking Railway project which later assumed definite form, the southern terminus at Chinkiang was altered to a point opposite Nanking on the Yangtze called Pukow, an old deserted walled town of no importance, except its proximity to the southern capital and as connecting the two systems more effectively than at Chinkiang lower down the river and the proposed terminus of the Pukow-Singyang road connecting the Eastern Yangtze systems with the Peihan trunk line. The preliminary negotiations for the concession were finally completed in May 1899, in which the Deutsch-Asiatische Bank representing the German interests was to finance, construct, equip and operate the northern section of the road from Tientsin to the Southern Shantung border, for and on behalf of the Imperial Chinese Government, and the British and Chinese Corporation acting for British interests was to take up the Southern Section on identical terms. The Boxer troubles suspended further progress and it was not until June 1902 that negotiations were again resumed with China for the conclusion of the final agreement, and in January 1908, that this document was formally signed and sealed.



TIENTSIN-PUKOW RAILWAY.—NORTHERN SECTION

The Loan Agreement was for £5,000,000 at 5%, for a term of 30 years, amortization to commence in ten years in half yearly installments, the Chinese government reserving the right to redeem the loan any time after ten years by the payment of a premium of 2½% or £102.10s. on every £100 bond.

The loan was secured on the lekin and internal provincial revenues of Chihli, 1,200,000 Haikwan Taels per year, of Shantung, 1,600,000

Haikwan Taels per year, and by the Nanking Lekin of 900,000 Taels and the Huai-an Native Customs in Kiangsu of 100,000 Taels per year.

The loan was to be issued in two installments the first of £3,000,000 placed on the market in March 1908, at 98¾. The issue was subscribed for four times over, and a considerable portion was subscribed for by Chinese in Pekin and Tientsin. The provincial government of Chihli, Shantung, Kiangsu and Anhui hold £260,000 in bonds exclusive of those purchased by private native investors. The price to the Chinese Government under the Loan Agreement for the 1st installment was 93% of the face value and on future installments the Chinese government was to receive the same rate as paid by the public less 5½ points commission to the financial syndicates.

The conditions of the loan agreement were distinctly favorable to China. The control of the funds and expenditures were confided to the managing director of the line, and a modern system of accounting provided for subject to inspection by a representative of the syndicate at any time, to verify the payments.

The construction and control of the railway was held in the hands of the Chinese government, and the British and German chief engineers were subordinated to the control of the Chinese managing director. The purchase of materials was also arranged for on a most favorable basis for China. In fact, the conditions surrounding the construction of this road, threw all necessary precautions and obstacles in the way of graft or extravagance, and with honest directors there was little leeway for abuse of authority or scandal in the management.

The Germans have taken the credit for establishing the precedent of these so called Pukow terms in dealing with China, while British financiers have held to the opinions that they fail to sufficiently safeguard the investor in a country where official honesty is viewed from a standpoint utterly opposed to Western ideas on the same subject.

Work on the northern section of the road under German supervision was officially commenced on June 30th 1908, when the Viceroy of Chihli and the managing director Lu hai-huan with elaborate ceremonies turned over the first sod at Hsi-ku, a suburb of Tientsin. H. E. Lu Hai-huan, one of the most respected officials of the Empire, was appointed director general of the two sections, and Taotai Li Te-shun (Alfred Li) was made managing director of the Northern Section, and Taotai K. S. Low, Director of the Southern end. Mr. Dortmuller, of the Technical staff of the German Shantung Railway, was appointed chief engineer of the German section, and Mr. T. W. T. Tuckey, who had 20 years' experience on the Imperial Railways of North China, was selected for the similar position on the British end.

Work on the northern end was vigorously prosecuted from the beginning. The managing director, Li Teh-Chin, was selected for his knowledge of German. A large tract of land was optioned for in the vicinity of the Tientsin city station of the I. R. N. C. for the terminal depot, yard warehouses and shops. Materials for the line were all purchased in Germany, and it is alleged that in some instances the goods were purchased and on the way before public tenders were invited in Tientsin.

It is difficult pending the result of investigations now being conducted at Tientsin to accurately gauge the many charges of corruption and fraud alleged to have been practiced under the tenure of office of Taotai Li Teh-Shun. It has been charged that he agreed for a financial consideration to change the terminus of the road to a place near the German settlement at Tientsin, and that coal contracts were placed at excessive rates to a colliery controlled by Germans, and that he acted in collusion with German friends in the purchase of lands, sharing the profits with them. Taotai Li is also charged with employing an undue number of German engineers and assistants at excessive salaries and expense. According to native reports, the result of an official investigation under the direction of H. E. Hsu Shih Chang, the President of the Board of Communications, disclosed peculations to the extent of Taels 3,500,000 during the tenure of office of Director Li. The situation is decidedly unpleasant for Germany, and a hard blow to the Pukow terms, she was so proud of. No accusation is made against German participation in this huge scandal, and they strenuously deny smallest ground for associating German officials with the charges of fraud in connection with Li's defalcations. The end of the disagreeable occurrence was the impeachment of Taotai Li, and in his fall he dragged down his superior H. E. Lu Hai-huan, against whom no breath of suspicion has been stirred. The Throne, however, held him responsible for his subordinate's misdeeds, and charged him with lack of proper supervision.

TIENTSIN-PUKOW RAILWAY. (NORTHERN SECTION).—TURNING THE FIRST SOD.

It is admitted that the German chief engineer, held an equal position with the managing director in his control over the accountant, and all foreign employers, despite the provision of the loan that the director was solely responsible for the funds. This participation, however, ended here, for it could not extend to the actual disbursements, which were held exclusively by the director. The German official was powerless to actually disburse funds, so in the absence of collusion, the sole responsibility must be shouldered by the Chinese official. H. E. Hsu Shih Chang, president of the Railway Board and one of the really honest and capable officials of China, has been authorized by the Regent to take over the duties of the director general of the road in the place of H. E. Lu Hai-huan. H. E. Hsu fearing a repetition of scandals has commenced his duties by concentrating financial control of disbursements in his own hand, and hereafter the managing directors of the two sections are prohibited from paying out funds exceeding Taels 500 without special sanction from him. The action while one of precaution, is a severe reflection on the honesty and capacity of Taotai Low of the Southern Section, and places great difficulties in the effective dispatch of business. Work on the Northern Section, however, has been pushed ahead notwithstanding the official scandals at headquarters. The greatest engineering problem on this section is the bridging of the Yellow River above Tsinanfu, the provincial capital of Shantung, where conditions similar to the bridging of the same river for the Peihan Railway is encountered. The estimated cost of this bridge alone is Taels 2,000,000 Otherwise the country is level and there are few engineering difficulties of magnitude to contend with.

It is expected that the entire line will be open for traffic within three years. It will pass practically through the same region as that served by the Grand Canal. It is more than 600 years since the Grand Canal was completed by the Mongol Emperor, Kublai Khan, and rightly regarded as a work of great importance, providing as it did, an interior line of water communication between Hangchow and Peking. For centuries it served as the main artery of commerce between the north and south, and the grain and silks sent to the Imperial court in tribute by the rich provinces of southeastern China were carried over its waters. Most of this transport in recent years, however, has been done by steamships going by sea. The canal has not lost its usefulness, but the section through Shantung has never been an unqualified success, and is in need of repair now.

The line will follow the course of the Grand Canal from Tientsin to Techou, on the border of Shantung Province, the course being a little west of south. From Techou it will go southeast to Tsinan, the capital of Shantung, crossing the Yellow River near this city. From Tsinan it will run, in a southerly direction, through the mountainous region of Shantung to Ihsien, near the southern border of that province, where the northern and southern sections unite. It will probably pass through Tai-an in Shantung, not far from Mount T'ai, the sacred mountain of China, and the home and tomb of Confucius. The Southern section will pass from Ihsien, southwest, to Suchau, in northern Kiangsu Province, crossing the Grand Canal about midway between the two cities. Suchau is in the bed of the old Yellow River, a low-lying region of lakes and streams, but, a very fertile country, and the source of a variety of opium highly prized by the smoker. From Suchau the line will run southwest to Suh, in Anhui Province, thence a little east of south to Fungyang, crossing the Huai River just north of that city. From Fungyang it will follow, in a general way, the old highway built by the founder of the Ming dynasty from Nanking to K'aifeng but diverging a little to the west to pass from Fungyang through Tingyuen to Chuchou. This highway has, from very ancient times, been the route taken by caravan traffic between Nanking and northwest China. Pukow, the southern terminus, is a small town opposite Nanking, at one time on the north bank of the river Yangtze but now some two miles inland, the intervening ground being a reed marsh formed by the deposits of the river.

The region traversed by the Tientsin-Pukow line is not one of the richest in China, but there are many fertile districts and the mountainous region at Shantung doubtless contains mineral deposits of value. Agriculture, mining, and manufacturing will all be estimulated when cheap and rapid transportation is substituted for the slow and expensive methods now employed, but the chief value of the line will be, perhaps, its usefulness for through communication between the capital and the wealthy and populous regions of Central China, devoted to rice growing, sericulture, and manufacturing.

THE PEINLO RAILWAY

(Kaifengfu-Honanfu or Kaifeng-Lu-Yung Railway)

The contract for the construction of this line was signed in Shanghai, 1904, between H. E. Sheng Kung Pao, the director general of the Imperial Chinese Railways, and Mr. Armand Rouffart, the representative of the Cie General de Chemins de Fer et de Tramways en Chine. Article 1 of this Agreement reads:—

Article 1.—The Director-General of the Imperial Chinese Railway Company, H. E. Sheng Kung Pao, has asked, in a report, the Chinese Government that a line of railway should be built starting from a point called Yung Tse on the railway line of the Luhan where the latter crosses the river. From that point eastward to Kai-feng the line will be 170 li long, and westward to Ho-nan Fu it will cover 250 li. These two branches of the Luhan to be built by a Belgian party (groupe), which will make a loan to build them.

This proposal was accepted by a decree dated the 30th day of the 10th moon of 25th year of the present reign.

Monsieur Rouffart, the representative of La Compagnie Générale de Chemins de Fer et de Tramways en Chine, has asked us by letter to undertake this building, and we sent a Chinese official to accompany him in his preliminary study on the ground. After said study, Monsieur Rouffart estimated the probable cost of these two branches at one million pounds sterling, or 25,000,000 francs; and for all other terms the contract from Peking to Hankow are to be followed.

Under date of the 29th day of the 12th moon of the 28th year of the present reign the Wai-Wu-pu wrote to me that I was to discuss the terms of the contract with Monsieur Rouffart, and it asked me to settle the matter as promptly as possible.

Considering that Monsieur Rouffart has full powers from the Compagnie Générale de Chemins de Fer et de Tramways en Chine to negotiate this business for it, we, Director-General of the Imperial Chinese Railway Company, and Monsieur Armand Rouffart, representing the Compagnie Générale de Chemins de Fer et de Tramways en Chine, hereby enter into a contract for a loan, the product of which shall be applied to the building of the Railway from Ho-nan Fu to Kai-feng Fu.

Before signing the contract the Director-General of the Imperial Chinese Railway Company has submitted said contract for Imperial sanction, and it has been approved under date of———.

This decree shall form Annex 1 of the present contract. In virtue of the above the Director-General, on account of the Chinese Government, makes a gold 5 per cent. loan for the sum of 25,000,000 francs, or 1,000,000 pounds sterling. This loan shall be known as the Chinese Government 5 per cent. Gold Foreign 1903 Loan.

The construction of this railway has proceeded with great activity. This line runs from east to west and follows the Chinese high road between Kaifengfu and Lo-Yung (Honanfu). Lo-yang has a most important inland trade and is situated at the intersection of several high roads. The railway will be another artery calculated to add further vigour to its trade and commerce.

Sometime ago, the Belgian Government applied to the Governor of Honan for the grant of a concession in Lo-yang and the Governor has taken in hand the work of laying out a new concession to the west of the white horse temple at Lo-yang.

The first section of the railway is between Kaifeng and Cheng-chow on the Pehan line and a great trade centre. This section was easy of construction, there being little in the way of engineering difficulties.

The passenger and freight charges on this line are the same as on the Peking-Hankow Railway, or as follows per kilometer: First class passengers, $0.018; second-class, $0.013; and third-class, $0.006. First-class freight per ton, $0.083; second-class, $0.026; and third-class, $0.017.

The second section runs to Szechui, a fairly large market down at the foot of the Tin-man Mountain, not far from the Yellow River.

The section between Szechui and Heishi-kwan presents numerous difficulties. It passes through the mountainous region of the Timan Shan. Heishikwan is close to Kung-hsien, an important sub-prefectural town. Eleven tunnels some of them being 2,000 feet in length were necessary on this section, and 6 large iron bridges. The bridges were erected at Chin-kou, one at Shui-kou, and three at Shie-ti-tun.

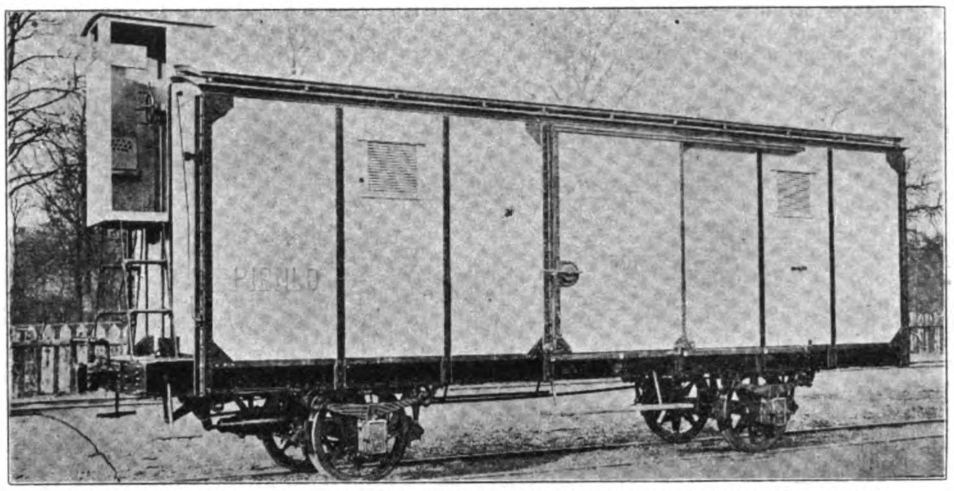
It was at first thought to give the construction of the bridges to a foreign contractor, but subsequently the Chinese decided to build their own bridges. A steel girder bridge about 1,500 feet in length spans the Lo-ho, an important tributary of the Hoang-ho.

Construction on the Chengchow-Honanfu section, was subject to frequent delays, as the rails, which are 12 meters long, and can not be made in China, were delivered by the Belgian mills very slowly. The rolling stock was sent out from Belgium knocked down and set up in the shops at Chengchow.

The bed of the Lo-ho being fairly rocky, the foundation work was not as difficult as it might have been.

The fourth section between Heishi-kwan and Honan-fu, the terminus, has been completed and trains operating daily.

The extension of the Peinlo Railway westwards to Shenchow, and Tungkwan, at the bend of the Yellow River, and thence to Hsianfu, the capital of Shensi, will be taken in hand as soon as funds are arranged for. Tungkuan is also the proposed southern terminus of a line from Taiyuanfu. The extension of the Peinlo to this point is of the utmost importance to connect with the Shensi provincial road to the capital at Hsianfu. On the construction of this link depends the success of the Shensi project. The distance is about 480 li and the estimated cost about $3,500,000 gold. A foreign loan will probably be negotiated for the construction of this extension, and it is reported that Mr. Willard Straight representing the American group of financiers has already made overtures to the authorities at Peking to furnish the required funds.



PEINLO RAILWAY.—BELGIAN COVERED GOODS WAGON (BAUME-MARPENT)

THE CHEN-TAI RAILWAY

(Chentingfu-Taiyuenfu Railway)

The railway branching off the Peking-Hankow line at the small station of Chentow, several miles to the south of Chentingfu, traverses the hilly country to the west, and terminates at Taiyuanfu, the provincial capital of Shansi. Its official Chinese name is the Chen-Tai Railway, but it is also as well known by the name of the Shansi Railway or by its French translation "Ligne du Chanse." This line of 242 kilometers in length was probably the most difficult to construct of any of the roads in the Empire. Traversing a very mountainous country, the line has steep gradients, many curves and long tunnels. The highest point reached in the line is 3,500 feet above sea level, and at its western terminus at Taiyuanfu the elevation is 2,600 feet. The air line distance between Chentow and Taiyuanfu is 120 miles; by the railway it is 150. There are 25 stations on the line a somewhat larger average than found on the main Peking-Hankow road.

It was in 1897 that the Russo-Chinese Bank and the Comptoir d'Escompte sent a French engineer, M. Hivonnait, into the province of Shansi to study its mineral resources and determine the route of a future railway.

The concession for this road was secured by the Russo-Chinese Bank in May 1898, but on resurvey the original loan agreement was increased from 25,000,000 francs to 40,000,000 francs, the bonds bearing interest at 5% per year and redeemable in thirty years. The loan is secured on the undertaking and guaranteed by the Imperial government. The Société d'Etudes de Chemins de Fer en Chine, the Belgian company holding the concession, and building of the Pekin-Hankow Line, were given the contract for the construction of the Shansi line, and its engineers commenced operations in 1903, laying the first rail in 1905 and the road opened to through traffic in October 1907. The conditions under which the concession was granted and the mountainous and difficult nature of the country did not justify the company in incurring the cost of a standard gauge road, so the meter gauge was adopted with 60 lb. rail. This difference in gauge prohibits a junction with the main line, and the interchange of cars, compelling the complete transfer of through freight at the Chentow terminal. A few years ago this place was only a village of 200 Chinese, it has now a population of several thousand, and a foreign hotel under foreign management.

The engineering difficulties of the line have involved the construction of some 22 bridges or viaducts, one of 17 arches, and 19 tunnels, several of which are over 300 meters in length.

In the eastern or lower part the line winds in and out among terraced hills and cuts through great banks of loes deposit—these "cuttings" requiring skilful terracing and draining to prevent rapid erosion, etc. Further west the hills became more formidable and call for several tunnels while the mountain streams crossed give play for the bridge-builders' skill. Coal is encountered about midway on the line. It is fine quality anthracite and is mined in great chunks about 10″×12″×16″ in bulk. The mines are within the concession of the Peking Syndicate, and the railroad does a good business in coal transportation.

The engineers who constructed the road are M. Georges Espanet, engineer-in-chief, and M. Millorat, adjunct engineer-in chief, and M. Jacques de Lapeyriere, first assistant engineer

CANTON-HANKOW RAILWAY

(Yueh-Han Railway)

The original concession for the construction of this line was held by the American-China Development Co. under a contract signed at Washington in April, 1898, by H. E. Wu Tingfang acting as representative of H. E. Sheng Kung pao, the Director General of Railway.

The final terms of the Agreement called for a loan of $40,000,000 gold, to run for 50 years, to be issued at 90 and bearing 5% interest. Provision was however made for earlier redemption. The bonds were secured on the property and guaranteed by the Imperial Government. The construction of the line and expenditure of the funds was entrusted solely to the Company, who also received 5% commission for their services of supervision and purchasing material. The Company also received 20% of the net profits of the line after operation for a number of years.

The American Syndicate was organized by the late U. S. Senator Calvin S. Brice who also directed the negotiations, William Barclay Parsons was the Engineer, and Cary & Whitridge the attorneys. The syndicate included all the great rival banking firms of New York, which are generally antagonistic to each other. J. P. Morgan, J. Rockefeller, Mr. Cassett, the Vanderbilts, Mr. Harriman, Mr. Gould, Mr. Sage, Mr. Hill, Sir William Van Horne, and other leading financiers all signed Mr. Brice's application for the concession

The survey party under Mr. Parsons arrived in China in the fall of 1898 and after considerable obstruction and delay completed their reconnoissance survey and first rough estimate.

The following summary of the work accomplished up to the time of the purchase of the concession by China, is from the pen of the late C. W. Mead, C. E., the Chief Engineer of the road, and was written for the FAR EASTERN REVIEW.

Leaving Canton the line runs N. up the Pearl River about 30 ms. where it strikes across to the Pei River following the valley about 100 ms. to Shao Chou, thence up the Wei River to near its headwaters, where it crosses a range of mountains on to the headwaters of the Lei River which flows N. into the Siang and Yangtsze; then following the Lei, Siang and Yangtsze valleys to Wuchang on the S. side of the Yangtsze opposite Hankow. The line traverses a country rich in both agricultural and mineral resources, and thickly settled except in the mountainous districts and some of the flooded sections of the Yangtsze and Siang River valleys.

Approximately the main line is 750 ms. in length, and there are about 150 ms. of branches, of which the most important is the Canton-Sam Shui line which has been constructed and in operation for 5 yrs. An important feeder leading from Ping Hsiang to Chu Chou, about 60 ms., has been constructed, and is now in operation. This brings the products of the Ping Hsiang coal mines, owned and operated by H. E. Sheng Kung Pao, to Chu Chou, where they will be transhipped to the Han Yang Iron Works also owned and operated by Sheng.

SURVEY OF THE LINE.—A reconnoissance survey was run over the entire line by Wm. Barclay Parsons in 1898-9. Since then preliminary surveys have been run from Canton N. nearly 150 ms. and 100 ms. of same permanently located. On the N. end preliminary and location lines have been run from Yo Chow, at the mouth of the Siang River, to Chu Chou, the point of intersection with the Ping Hsiang branch. This is a distance of 150 ms., and is probably the portion which will be first constructed. This section, in connection with the Ping Hsiang-Chu Chou branch will deliver coal and coke to the comparatively deep water navigation of the Yangtsze whence it will be distributed along the lower Yangtsze by boat.

The Canton-Sam Shui branch for the first 14 ms. out from Canton runs over a flat country of alluvial formation and entirely covered with rice fields, cane, and vegetable gardens. This country is cut by many tidal streams some of them being 125 ft. wide and very deep Beyond Chai Bin the country assumes a broken aspect, and many low ridges separate the various valleys across which the line runs. These ridges are mostly of soft sandstone, only one reef of hard rock being found, and that was a black basalt at Wong Ting See, 3 ms. E. of Sai Nam. The entire country except the ridges would be subject to overflow except for dykes which are about 7 ft. near Canton, while at Sam Shui the main dyke is 30 ft. high. All the streams crossed are navigable for some kind of craft at some time during the year, and this fact forced an ascending and descending grade at the principal crossings.

The first 10 ms. of this branch to Fatshan is double-tracked and the last 20 ms. is single-tracked. The double-tracked portion has 13 ft. centers and 31 ft. roadbed; is laid with 75-lb. steel rails on steel ties and ballasted with broken stone on the Canton end and sand on the Fatshan end. The single-tracked line has a roadbed 18 ft. wide, is laid with the same weight rails upon Japanese oak ties, and is entirely sand ballasted.

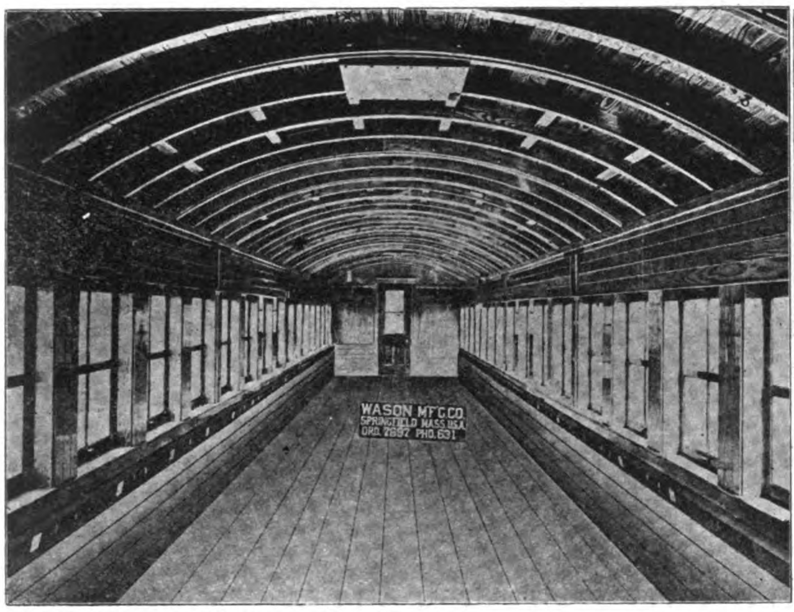
The alignment is very good having a maximum curve of 4° and none over 3° between Canton and Fatshan, except the 6° curve of 10°3 at Fatshan, which was put in order to place the line close to the town The maximum grade is 5-10 of 1 per cent and is used at five stream crossings between Canton and Fatshan and several times over low ridges between Fatshan and Sam Shui.

ENGINEERING DIFFICULTIES.—The only engineering difficulties on this division are the bridge foundations, which were made by first driving piles to a depth sufficient to give a bearing power of 12 tons on each pile. The required resistance to penetration was usually obtained in a strata of coarse quartz sand which lay from 30 to 50 ft. below the surface and varied from 3 to 7 ft. in thickness. In some cases a bearing power of only 6 or 7 tons could be obtained, in which cases special designs were made by putting in more piles and covering more ground. The piles were cut off below water-level, all the silt taken out from between them, and coarse stones were rammed in to within 2 ft. of their tops upon which concrete was built to sub-grade and granite bridge seats put on. The spans are of 10, 15, 20, and 30 ft. deck girders, and 40 and 60 ft. through girders. There is one bridge across the Sainam River with 96-ft. spans and three other bridges on the line 120 ft. long, which have one 60-ft. and two 30-ft. girders. Several box and arched concrete culverts were used, and arched road crossings below grade. Short spans were used for economical reasons as steel laid down at the bridge sites was costly, while the cost of foundations was low owing to cheap material and labor. The ease in handling short spans with unskilled labor was a large factor, and all these reasons tended to an opposite economic condition to that found in Europe and America.

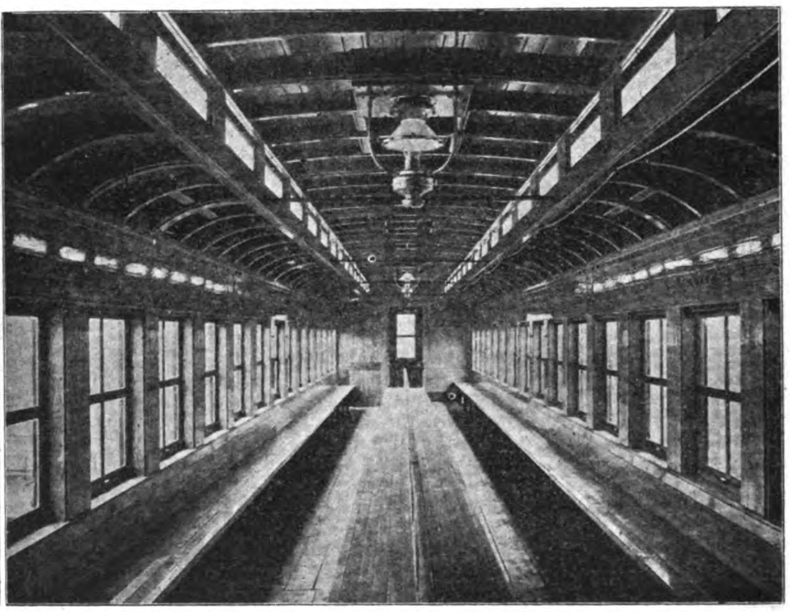
Only one permanent station was constructed and that at Fatshan. All others were small and temporary and put in at an average distance of 2 ms., thus giving the traffic an opportunity to develop and decide where stations were necessary. The Fatshan Station is a fairly handsome 2-story structure built of brick and wood and the cost was about $15,000 Hongkong currency.

A blacksmith and repair shop was established at Shek Wei Tong, which is complete enough to make all necessary assembling of rolling stock for the division and keep it in repair. This shop is entirely operated by Chinese workmen under the direction of Mr. J. Lind.

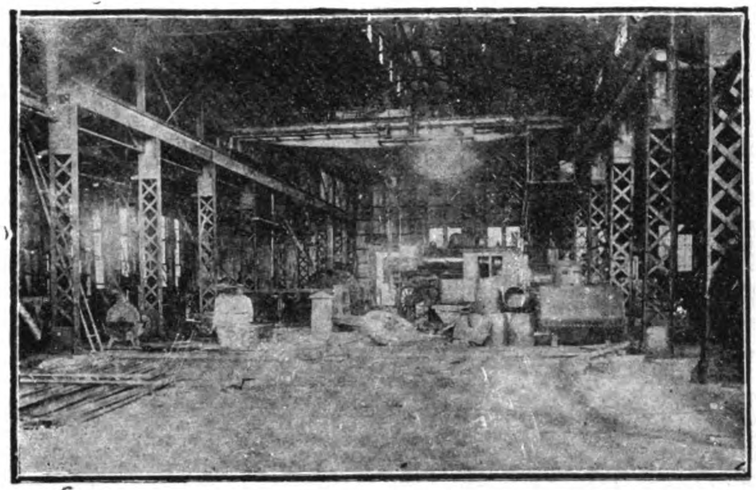
SUPERSTITION AND IGNORANCE MENACE CONSTRUCTION.—Many difficulties were encountered in the construction of this branch mainly on account of the superstition of the people and

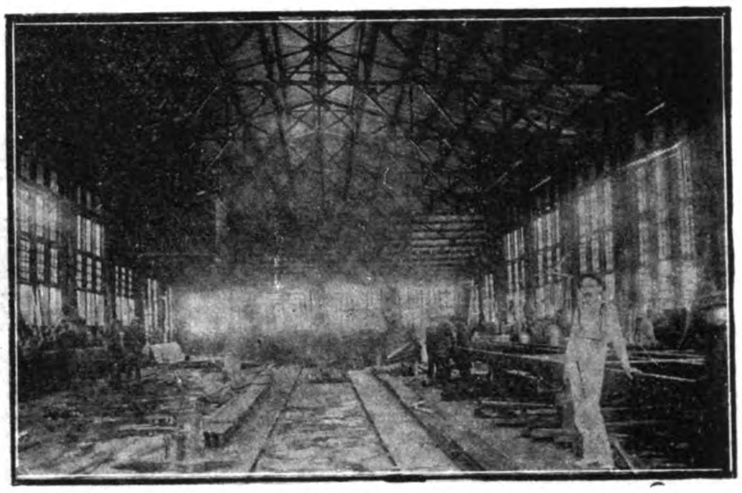


CANTON-HANKOW RAILWAY.—INTERIOR OF 3RD CLASS CAR



C. H. R.—3RD CLASS CAR FROM THE WASON MFG. CO.

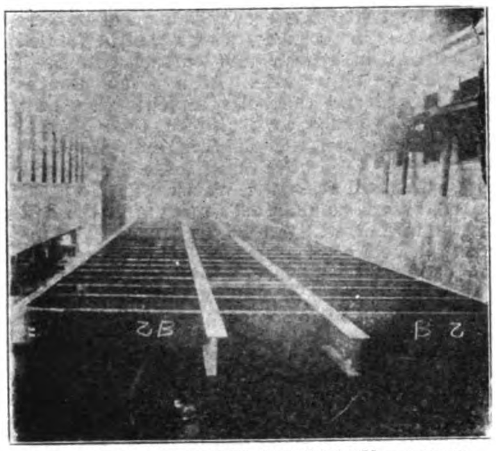




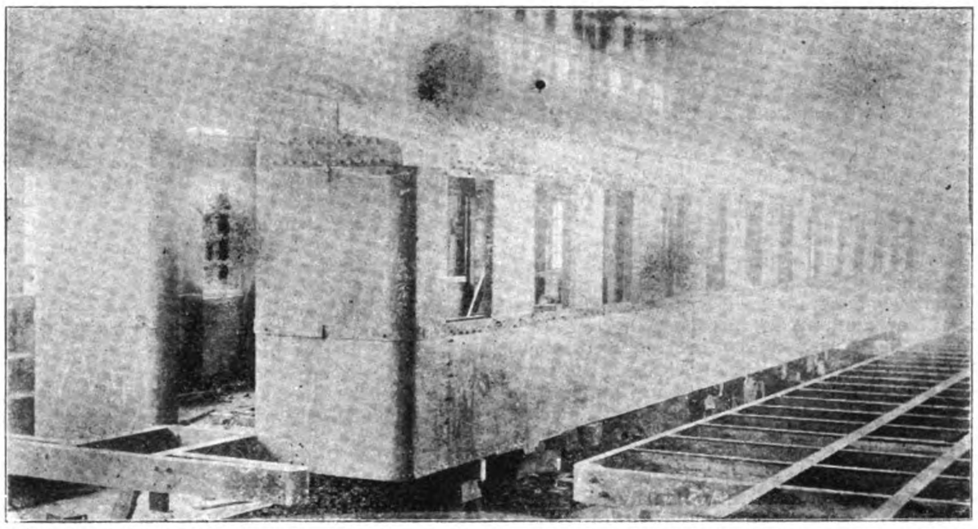
IMPERIAL CHINESE RAILWAYS.—CANTON HANKOW LINE

MACHINE SHOP

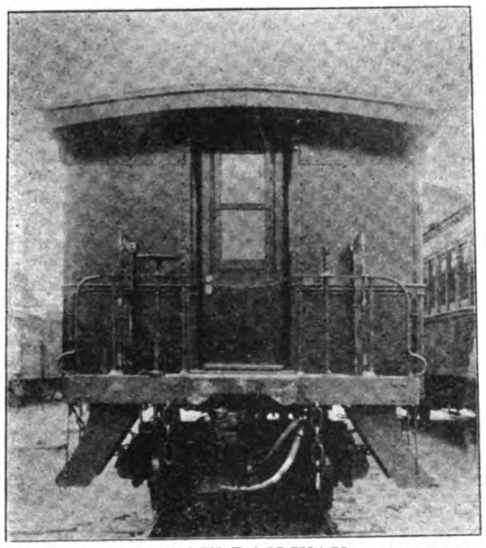
MACHINE SHOP SHOWING FRAME OF 60 FOOT STEEL CAR ON THE RIGHT UNDER CONSTRUCTION



CANTON-HANKOW RAILWAY.—STEEL UNDER FRAME CARS BUILT AT SHEK-WAI-TONG



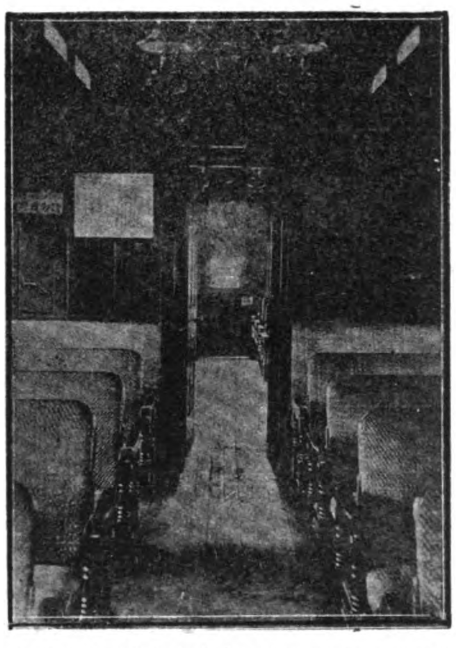
CANTON-HANKOW RAILWAY.—60 FT. STEEL CAR BUILT AT THE SHEK-WAI-TONG SHOP



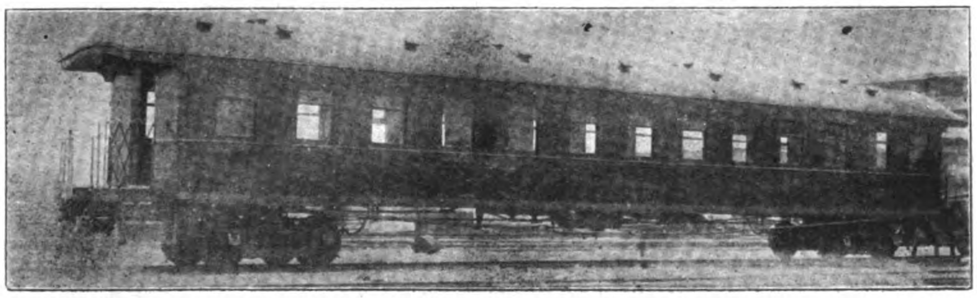
CANTON-HANKOW RAILWAY.—END VIEW OF STEEL CAR

the profound ignorance of the workmen, most of them never even having heard of a railway much less seen one, but with the blandlike simplicity of the Chinese there was no trouble in finding would be contractors who would undertake any kind of a contract for any price and agree to complete it in any time required. Experience taught the engineers that the Chinese were able to contract for earth embankments and shallow cuts, while all other work was more economically performed by using foreign foremen or letting the work to foreign contractors. At best it was slow and costly as all the workmen had to be first taught, and there were no experienced foremen or reliable foreign contractors available. The building of this line was not only a school to the Chinese employed, but it taught the engineers in charge how to take advantage of the peculiar conditions in China. That this schooling was valuable was clearly proven by the greatly reduced cost of the work performed on the main line after the completion of the branch.

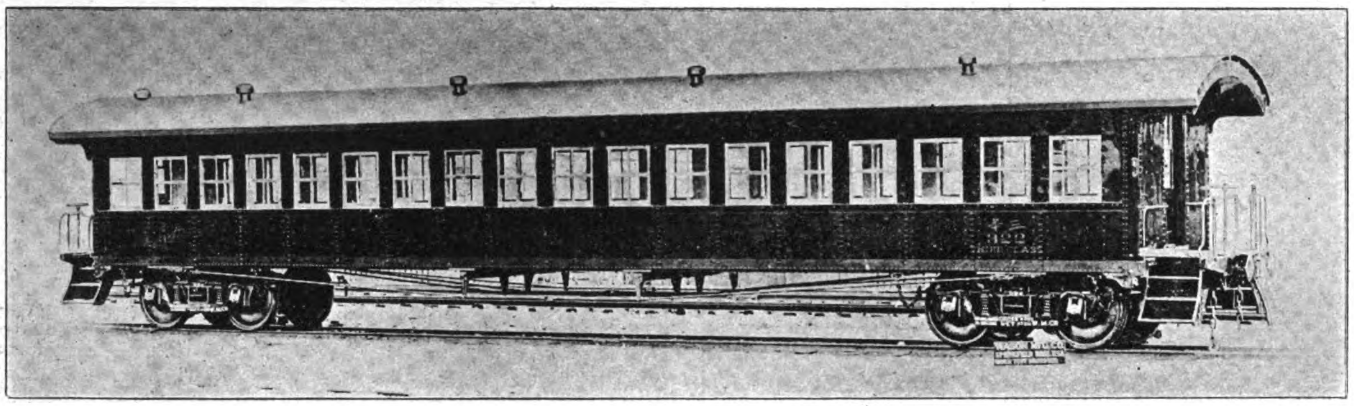
As an illustration of the difficulties encountered on account of the ignorance and superstitions of the people, when the line was permanently located to Sam Shui a strong and vigorous protest was entered by the inhabitants of a little village called Too Yuen Kong on account of a 15-ft. cut through a small hill. In this protest the people said that a tiger lived in that hill and it was the guardian of the village; that, if the railway cut through it, the tiger



INTERIOR OF FIRST CLASS COACH, CANTON HANKOW RAILWAY



CANTON-HANKOW RAILWAY.—60 FT. STEEL CAR BUILT AT THE SHEK-WAI-TONG SHOP



would escape and go to the mountains and the village would go to the eternal bowwows, the people would die, the cocks would not crow, and the dogs would cease to speak. The engineers met the chief men of the village on the ground and discussed the matter, but could bring no arguments to bear to get their consent to the location of the line, and the result was that the location was changed at this point.

METHODS AND COST OF CONSTRUCTION.—(Prices in Mexican Currency). Many unique methods of construction were used, some original and others older than the hills to the Chinese, although new to foreigners. In the construction of embankments the Chinese were fairly adept for the reason that they had been constructing dykes for hundreds of years. They entirely ignored the use of wheelbarrows or all other methods of transportation except baskets. They were finally broken in to use wheelbarrows and small cars carrying about 1 cub. yd. For the transportation of materials less than 100-ft., baskets were found to be more economical, while for moderately short hauls the wheelbarrow proved the best. The cars were used in long hauls of 1000 to 2000 ft., and at a distance of 2000 ft., ordinarily soft-cut material could be picked, shoveled into the cars and delivered into an embankment 2000 ft. away for from 20 to 25 cts., Mexican, per yd. Cost of overhaul by cars was about $\frac{1}{2}$ c. per cub. yd. per 100-ft., while overhaul by basket or wheelbarrow was from 1 to 2 cts. per yd. The cost of embankments to a height of 4 or 5 ft., through rice fields, was from 10 to 12 cts per cub. yd., the cost increasing as to height of embankment, coming up to 18 or 20 cts. in some of the highest. These prices obtained on the main line after the completion of the branch. The cost of rock excavation run from 60 cts. on the softer sandstones to $1.40 on hard trap per cub. yd.

Piles cost from 25 to 35 cts. per lin. ft. according as they were 25 or 50 ft. long. The piles used were Chinese pine brought many hundreds of ms from the headwaters of the North and West Rivers. This wood is very poor—something like basswood—but is the best available and answers fairly well for pile foundations, but great care has to be used in driving to avoid breaking. A diameter of from 14 to 16 ins. at the butt is about the extreme size that is obtainable. The driving cost about $2 each. At the larger bridges steam drivers were used and at the smaller ones hand drivers. The hand drivers were handmade and operated with a whim. One of the drivers was fitted with a treadmill arrangement for raising the hammer, and it was found that the same number of coolies would drive twice as many piles by this method in a day as by hand, and this manner of working appealed to them more strongly than raising the hammer by turning a crank.

Concrete for bridge foundation was composed of 1 part cement, 3 parts sand, and 5 parts broken stone. This cost in place from $10 to $14 per cub. yd., exclusive of cost of cofferdams when used, which added from $1 to $2 per cub. yd. The cement used was the "Green Island" brand which is one of the best cements in the Orient and very satisfactory to use on account of its uniformity. Sand of a most excellent quality was found in the immediate neighborhood while the broken stone came from the North River and cost about $2 per cub. yd.

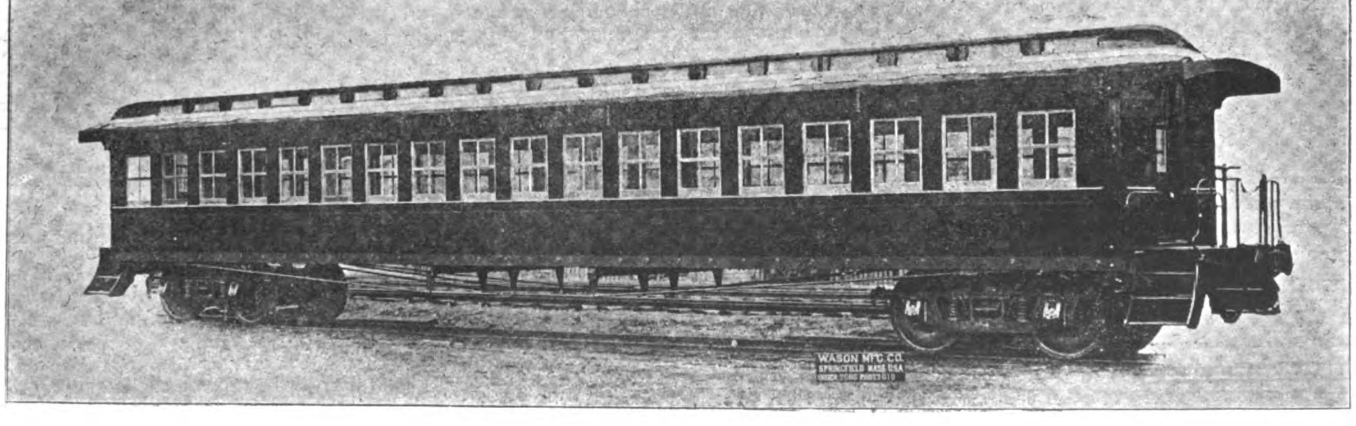
Oregon Pine was used for forms, false work, etc., and cost in Canton $70 per 1000 ft.

ROLLING STOCK.—The rolling stock is all of American make. Eight second-hand locomotives of the Manhattan Elevated Railroad were bought for $3000 gold each, and sent out for temporary and construction purposes. The standard locomotives weigh about 80 tons complete and were built by the Pittsburg Locomotive Works. Twenty 40-ton flatcars were sent out before the branch was completed and it was necessary to transform these into temporary passenger coaches. This was done by the use of rough Oregon Pine, boarding them up half way, putting on a roof covered with "P. & B." roofing, and furnished with four long benches running lengthwise of the coach. The first class coaches were the same except the benches were either covered with Canton matting or replaced with bamboo chairs and had Canton matting on the floors.

The next step was the conversion of boxcars into passenger coaches, which was performed by putting in benches and cutting two small windows on either side. After a few months first, second and third-class coaches were sent out, also baggage cars. (Since then several locomotives from the Baldwin and American Locomotive Co. have been added, and new cars purchased from the Wason Mfg. Co.)

This branch commenced to pay after the first month that it was put in operation. The increase in volume of passenger traffic was steady for 15 mos., when very nearly the maximum was reached. The receipts of this line average from $50,000 to $60,000 per mo., and the operating expenses are about 25 per cent. This makes a very creditable showing for Mr. Lind, the efficient traffic manager. An express freight has been established which is growing in popularity, and which is sure eventually to get all traffic in valuable cargo, such as specie, silks, tea, etc. It will be sometime, if ever, before this line will do a large freight business for waterways are everywhere and afford a cheap, if slow, means of transportation, and time is no object to the average Chinaman in his common everyday affairs.

THE MAIN LINE.—Construction was begun on the main line in January, 1904, and entirely suspended in October of the same year. During this time 12 ms. were practically completed from Canton to Ko Tong, with the exception of laying the rails over the last 6 ms. This work was not prosecuted vigorously as the money of the company began to get short and only a limited amount could be expended monthly. It was very unfortunate that these 12 ms. could not have been finished and put into operation, as they would have added very materially to the receipts of the company. On these 12 ms. there was one thorough cut which was about $\frac{1}{4}$ of a m. in length and at the summit 50 ft. deep, and contained 112,000 cub. yds. of material. A small industrial railway was used to haul the material in this cut to make the



embankments on either end. The extreme haul was 3000 ft. and the cost was 25c. a yd. The bridges on this section were all small and single spans. At Ko Tong 15 6-ft. spans were to be put in. The foundations had not been built at the time of the closing down of the work but the spans were made and in the yard of the Wong Sha, or Canton terminal.

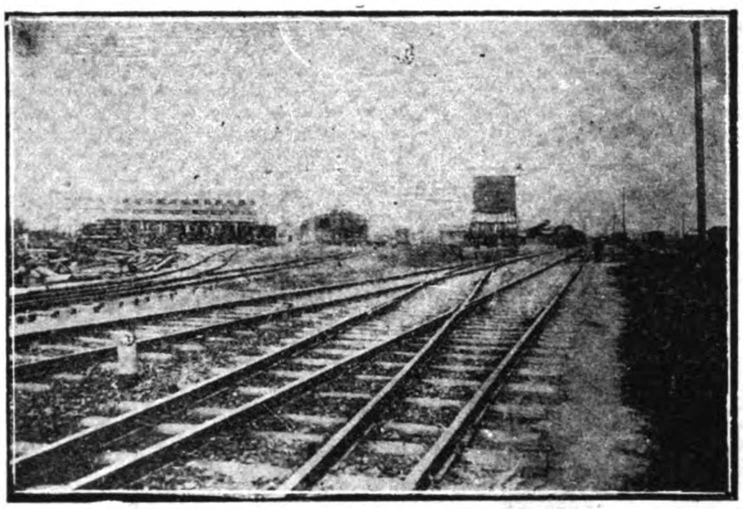
ENGINEERING LESSONS.—A summarization of the lessons this railway construction teaches to foreign engineers, and others undertaking construction work in China, is embodied in one axiom,—treat the Chinese fair and be patient. There is no man living who will do as much work, do it as cheerfully and for as little money as a Chinaman if he is treated right and handled properly. He has disagreeable attributes to be sure, but his good qualities more than offset them. It must be understood that he is of necessity almost entirely ignorant of modern methods of doing things, but he is very imitative and learns easily. When the Canton-Samshui division was put in operation all the locomotive. drivers were foreigners with Chinese firemen. Within 1 yr. from the date of opening all the foreigners had been replaced by the native firemen and only one foreign expert driver retained to have general supervision over the rolling stock and teach new men. The same thing was done in handling the steam pile drivers. At first the crew was made up of foreigners who were soon replaced with Chinese. This applied through all the work, and when construction was suspended there was very little need of skilled foreign foremen, as Chinese skilled workmen had been developed in all lines

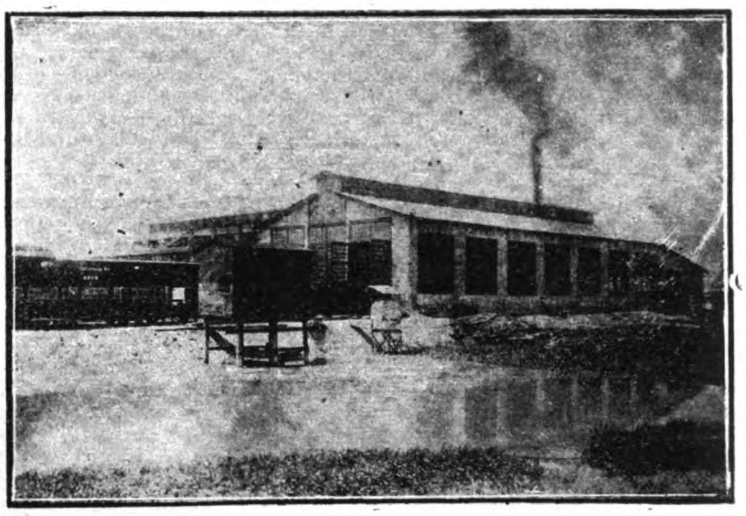
The history of this concession is an old story. Belgian interests representing French and Russian capital, persistently obstructed American negotiations for the concession, and when the latter secured the final agreement providing for a loan of $40,000,000 instead of half that amount as originally outlined, the European combination set to work to undermine American preponderance by purchasing shares in the open market. By the death of Senator Brice the American syndicate lost the one man whose influence would have pulled the enterprise through to a successful termination, and it would appear that his associates lost heart in the scheme The Belgian agents were scouring the New York market for shares and when they had control of the situation, Mr. Parsons, who had succeeded Senator Brice, was superseded as President of the American Company by General Whittier, the agent of the Belgian syndicate in New York, and the China manager and the American engineers were recalled and replaced by Belgians. China, however, protested against the situation, and refused to officially recognize Belgian preponderance, claiming that the spirit of the concession had been violated by control of the American-China Development Co. passing into their hands. Through the efforts of J. P. Morgan & Co. the control of the Company was again secured for American interests, but China had set her heart on cancelling the concession and building the line herself

The American Government also assured China that the American character of the company would be maintained, but several months of delay followed. Work was stopped and the Chinese chafed under the inaction.

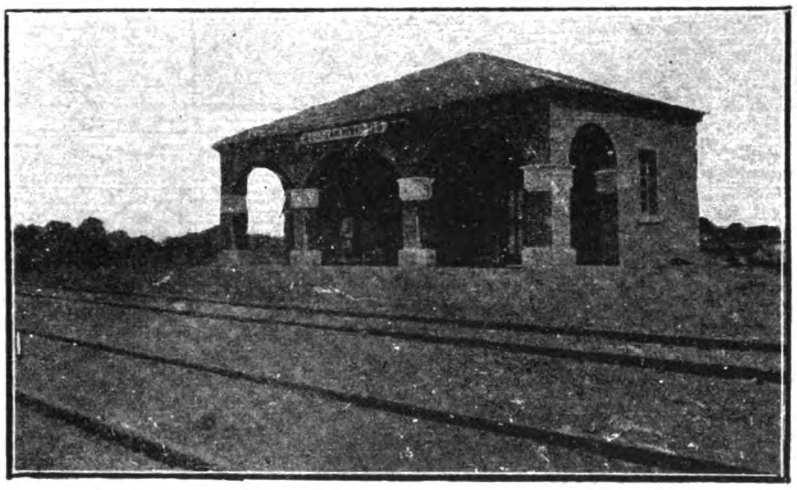
Sheng Kung Pao dispatched his Foreign Secretary, Mr. J. C. Fergusson, to America to investigate the situation and ascertain the cause of delays. His report stated that Gen. Whittier as President of the Company assured him that work would be resumed at both ends of the line as soon as materials and tools could be shipped to China. Gen. Whittier declared that the concession had never been sold, and would not be, and the stock books showed that of 6000 outstanding shares, 3200 were owned by American citizens, members of the original syndicate; 1,004 by a French Banking house, and the balance 1,796 by Belgians. As a result of further delays in resuming work, Sheng insisted on the cancellation of the concession.

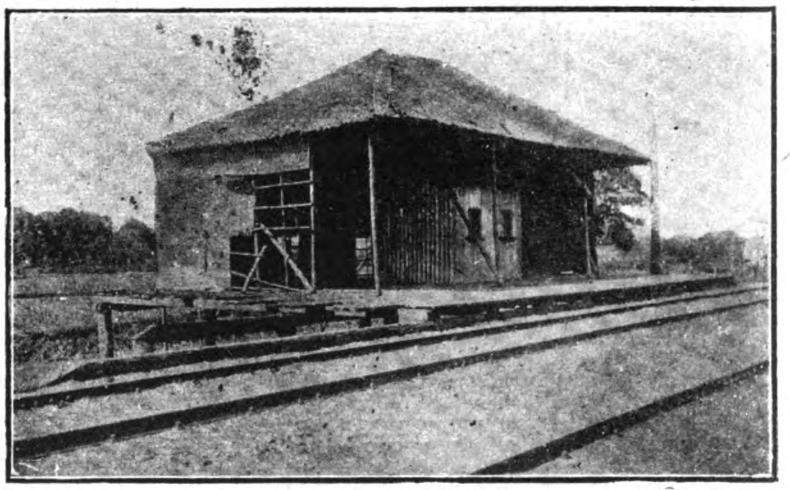
After lengthy negotiations the Americans finally consented to forego their rights in payment of $6,750,000 gold. This represented an expenditure of $3,000,000 for the 30 mile Samshui Branch, and about 50 miles of completed earthwork on the main line, and $3,750,000 as compensatory damages for the loss of valuable rights. This figure has been commented on as unduly excessive. Americans maintain that the influences working against them in China, and the Chinese desire to get rid of foreigners and build the road with their own money, was so strong that any attempt on their part to insist on retaining the concession would have been viewed as a desire to obtain political advantages. It takes time to reorganize a new railway staff, float bonds, and secure funds for the purchase of materials, and





CANTON-HANKOW RAILWAY.—THE SHEK-WAI TONG YARD AND EXTERIOR OF MACHINE AND CARPENTER SHOP





IMPERIAL CHINESE RAILWAYS.—CANTON HANKOW LINE. STANDARD THIRD CLASS STATION BUILT BY CHINESE. STATION BUILT BY THE AM. CHINA DEVELOPMENT CO.

the work would have been pushed ahead in due time. Chinese opinion had been turned against Americans by a very carefully planned campaign and there was no use fighting it, especially as all papers published in China were under foreign influence and secretly opposed to America's entrance in the field. The entrance of J. P. Morgan & Co. into the syndicate was sufficient to guarantee the carrying out of the programme, but at the outset, it was seen that this made no difference to China, who was determined to force through a cancellation of the concession, as a sop to the new national spirit engendered by the Japanese successes of the war with Russia. The Belgians during their brief control openly attacked the work of the American engineers, and described the survey of Mr. Parsons as useless. As they were in high favor with Sheng Kung-pao owing to the harmonious relations prevailing during the construction of the Peking-Hankow Line, their stories helped to decide the point. Sheng Kung-pao in listening to these Belgian yarns apparently forgot that Belgian surveys and estimates were not always of a high order, as the Belgian surveys of the Peking-Hankow line were never delivered to him, until after he had presented them with a copy of the American survey and estimate of the line, prepared by Captain Rich. For weeks he had requested them to submit their surveys and estimates, and for weeks they requested that he first hand over to them Capt. Rich's reports. After several weeks of sparsing to cross-purposes, the Chinese holding out for the Belgian estimate, and the latter refusing until the American one was delivered to them, Sheng turned over Capt. Rich's estimates and surveys, and within a week the Belgian final official report was filed, strangely coinciding with the American figures.

In giving up the concession for a financial consideration, the American syndicate acted according to the best traditions of their country towards China. As a purely business propositions the concession, if carried through, was worth so much to the syndicate. If China was willing to pay a fair figure to redeem these rights, and build the road with her own funds, the American syndicate was entitled to a fair compensation for the loss of future profits.

There was no diplomatic pressure brought to bear on Peking to retain any commercial or political advantage under the terms of the concession. The Chinese in their enthusiasm were to raise the funds at home to repurchase the rights and construct the road, and American sentiment deferred to these laudable ambitions. And from this point the second chapter in the history of the road opens. When the time came for payment, the funds were not forthcoming. Chinese patriotism did not rise to these sublime heights, and Viceroy Chang Chih-tung was at his wits' end to secure the necessary money. The British Consul at Hankow seeing the opportunity to secure for his country the rights abandoned by America, was instrumental in bringing around the negotiations leading to a loan of £1,000,000 from the Hongkong Government to pay the American release. And here America set an example to China, which has been tenaciously opposed and rejected by European Powers. America permitted her interests to be purchased with the idea of assisting China towards control of her own railways, but she was forced to witness her rights turned over to Great Britain and paid for with British gold. Whenever the Chinese Government has approached Russia, Japan or Germany with the idea of purchasing her lost railway rights the invariable answer has been an unusually high figure and then only on the condition that the money be raised in the country.

The Chinese have struggled for four years to build the road with capital raised in the country but with little success. A joint stock company was formed with a capital of $40,000,000 Mexican on which calls have been made and the work carried on. H. E. Liang Chen-tung was appointed Director General of the Road under the style of the Canton-Hankow Railway Administration of three Provinces, and under his supervision some substantial progress was made, but the jealousies and discords of the shareholders, and refusal to pay up instalments when called on, led him to tender his resignation about two months ago. When he assumed charge there was 6,340,000 Taels in the treasury, paid in on the first instalment. From this sum the interest of the loan has been paid, land rights secured at the Wongsha Station amounting to Taels 1,250,000. Rails, sleepers, locomotives, cars, machinery and supplies purchased to the value of Taels 900,000. Most of the sleepers are from Tasmania. Rails were ordered from America, England and the Hanyang Iron & Steel Works. Ten passenger cars and 50 construction cars were purchased from the Wason Co. of America, and engines from the American Locomotive Co. At about the end of the year there was a balance of Taels 2,620,000 in the Bank.

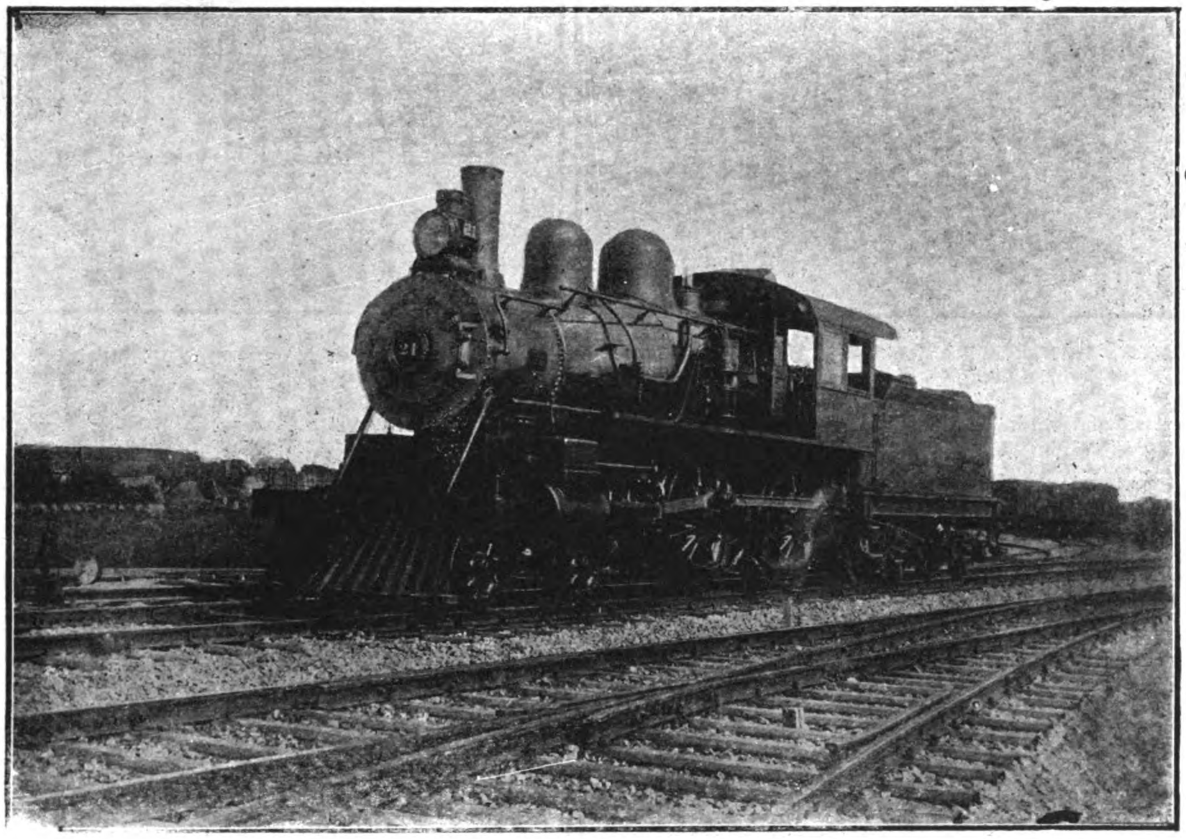
This British Government loan for £1,000,000 bears interest at 5% redeemable in 10 years, and secured on the opium revenues of Hupeh, Hunan and Kwangtung, the three provinces through which the future road will run. On September 9, 1905, Viceroy Chang writes to the British Consul General (Mr. Fraser) at Hankow, as follows:

"In view of your services in obtaining for me a loan through the Hongkong Government of £1,000,000 on very fair terms, wherewith to redeem the Canton-Hankow Railway, I give you a binding assurance that, should it be necessary to borrow funds abroad for the construction of the Canton-Hankow Railway, British financiers shall have the first option of undertaking the business, and, if bought abroad, British firms shall have the first option of supplying the machinery and materials."

In the same letter Viceroy Chang stated "with regard to the engineers for the construction of the Northern Section of the Canton-Hankow railway, it is declared that one half will be of the nation that lends the funds, and the other half will be Japanese."

So the Americans were tricked into selling out their rights, only to have them turned over to Great Britain, in case China could not raise the money at home.

After the redemption of the loan from the American China Development Company, the Railway was divided into three sections: the Kwangtung section, which was to be built by a Commercial Company composed of Cantonese; the Hunan section for which the Hunan gentry were to be responsible; and the Hupeh section, which was to be built by the gentry and officials of the Province. The Canton Commercial Company has been in a constant turmoil, but



IMPERIAL CHINESE RAILWAYS.—CANTON-HANKOW LINE. ENGINE NO 21. BUILT BY THE AMERICAN LOCOMOTIVE COMPANY

during the last two years, while Sir Liang Cheng-tung was in control, considerable progress has been made in construction. Somewhat over 100 miles of the line, reaching northward to the Hunan border, are now in operation. Nothing has been done in the Provinces of Hunan or Hupeh, and although many efforts have been made to raise funds, there has been no ready response from the people. The whole line is already handicapped by the yearly payments of interest and principal on the £1,100,000 borrowed from the Hongkong Government, and by the necessity of payments for interest upon the bonds amounting to gold $2,125,000 still in the hands of the Belgian shareholders of the American China Development Company.

Finding that it was impossible to build the road with purely native capital, the Chinese Government reluctantly admitted that it must have recourse to a foreign loan, and in conformity with the promise made by Viceroy Chang to Consul General Fraser, negotiations were opened with the British & Chinese Corporation to furnish the funds. The history of these negotiations has formed a large part of events in China of the last year. At this date, with all the facts of the situation before us, it is now easy to understand some of the reasons underlying the Chinese attitude in breaking off the negotiations with the British Syndicate and turning to the Germans. The history of British Railway loans in China has been a studied reflection on the honesty and capacity of Chinese officials, and as such is deeply resented, and China has retaliated against British interests as a result. British loans, like the Peking-Newchwang Agreement, tend to complete British domination of the railway, for their own peculiar interests. Where they had full control of expenditures, the Chinese are dissatisfied with the excessive costs. The basic principle of all British Loans to China, is that China is incompetent to manage her own affairs, and China has learnt from experience that she can hope for little modification of such views. The agent of the British syndicate in Peking although one of the most experienced men in China, utterly failed to recognize the change that has come over Chinese officials as a result of the workings of British loans, and stubbornly held to the old contention that a British Chief Engineer must either control or vise all accounts and expenditures. The last loan issued to China under the joint direction of British and German Banks, had resulted in breaking this principle owing to German initiative. In the Tientsin-Pukow loan, China had complete control of the funds and expenditures, and also of the Chief Engineer. But when the time came for another purely British loan, the agent of the Corporation reverted to the old order of things, and the Chinese baulked, and finally refused to have any further dealing with him or the corporation. Under these circumstances China naturally turned to those who had displayed more confidence in their honesty, and negotiations were opened with the German Syndicate. The latter taking advantage of the situation, and having set the precedent in the Pukow Agreement were ready and willing to advance the necessary loan on the same general conditions. A loan was therefore arranged between H. E. Chang Chih-tung and the Deutsche-Asiatische Bank for £3,000,000 at 5% for the construction of the Canton-Hankow Railway, on lines almost identical with the Tientsin-Pukow Agreement. This was signed on March 7th, ulto., and immediately the full significance of the move was made clear, an official protest was entered at Peking by the British Minister.

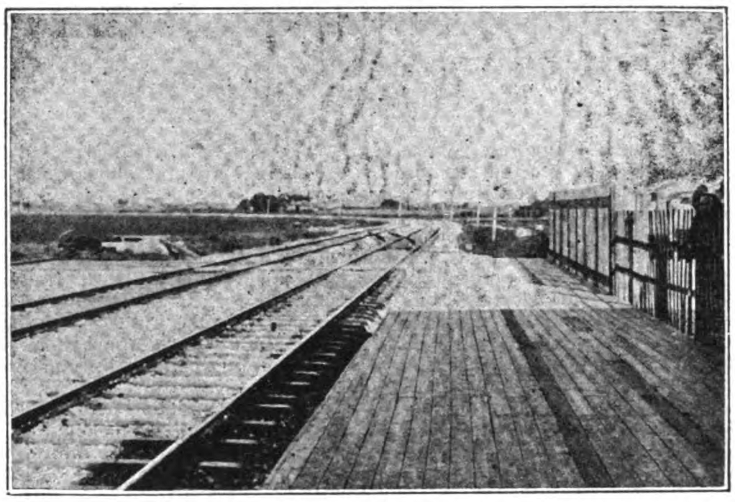
The history of these negotiations with all its detail of charges and countercharges of bad faith between the British, French and German financial groups is still fresh in the minds of the public, and are too tedious to bear repetition.

Briefly an understanding was finally arrived at in which the three groups were to participate equally in a new loan, in which was also included the construction of the Hankow-Szechuen Railway. Negotiations were proceeding favorably towards this end when another halt was called by an official protest from America, against the consummation of the deal, as under an agreement of August 1904, Price Ching gave a written promise to Minister Conger that in the event of the flotation of foreign loan for the Hupeh section of the Szechuen Road, China would first consult America and Great Britain. Protest was also made against the clauses in the proposed Loan Agreement giving preference to British, German and French materials as being contrary to the principle of the Open Door. At the same time a powerful group of American capitalists entered the field for a participation in the loan. An official statement from Washington was published at the same time explaining America's attitude.

The following is the text of the statement which the Washington Government issued last month regarding the formation of an American syndicate to undertake investments in China:

"The Government of the United States is much gratified at the formation of a powerful and responsible American financial group to enter the important field of investment in China and is giving to the enterprise that cordial support which the Department of State stands ready to give all legitimate and beneficial American commercial and financial undertakings in foreign countries. Such undertakings are to be encouraged because of the direct benefit to American commerce and to international relations. Since the Russo-Japanese War there has been great activity in railway building in China. A number of preliminary contracts were negotiated prior to the Boxer trouble and now have been reaffirmed in final form and the work of construction commenced. Not only has China granted to the British, French and German financial interests concessions to build railway lines, but the Government has already borrowed abroad to purchase the line now running between Peking and Hankow, from the financiers with whom the railway was jointly operated. In 1904 the American Minister at Peking, on behalf of American capitalists who desired a concession to construct the Hankow-Szechuen railway, approached the Chinese Foreign Office. In reply he received the assurance that if China could not herself furnish the funds, American and British capitalists would be notified and be given the prior right to supply the sum needed. In 1905 the American Government was twice approached by the British Ambassador, who stated that British capitalists desired to open negotiations for funds to construct the railway. No American capitalists happened to find it convenient at that time to co-operate with the British interests in their preliminary negotiations and the British Ambassador was so informed. On 2nd October, 1905, French and British financial groups signed an agreement to co-operate in securing various loans in China. In this agreement provision was made for American participation and a period of twelve months from the date of signature named as the time within which American capitalists might notify the British and French groups of their desire to share in their activities. The preliminary contract which was initiated at Peking on the 6th June provides that the British, French and German groups shall furnish China with funds to construct the Canton-Hankow line and the Hupeh section of the proposed Hankow-Szechuan line. German co-operation in this enterprise was arranged as the result of the dispute regarding the rights of the British and French group, as opposed to those of the German financiers who in March last secured a preliminary contract to float a loan for the construction of the Canton-Hankow Railway.

"Although American capitalists did not, owing to financial conditions in this country, find it convenient to accept the British invitation to co-operate with the British and French groups in endeavoring to persuade China to make the foreign loan for the construction of the Hankow-Szechuan line, it is fortunate that before the negotiations were terminated, the organization of this powerful American syndicate has made it possible for China to fulfil her agreement and grant to the United States participation in this loan in accordance with the Wai Wu-pu's promise of 1904. The Chinese Government was notified of the formation of the American group prior to the recent tentative initiating of the loan contract. Although American capitalists did not take up this matter in its formative stage, it is not felt that the interested parties will contend that one of two joint concessionaries can determine the period of time within which the right of other may lapse, nor is it believed that, having been notified of the readiness of American capitalists to participate in this loan, the Chinese Government would attempt to avoid fulfilling its clear obligation to the United States. The Department is following the situation with great interest and looks forward with confidence to a satisfactory arrangement between the American group and the German, British and French financiers."



VIEW OF TRACKS ON CANTON-HANKOW RAILWAY FROM FATSHAN STATION

Although the loan agreement has not yet been signed it is understood that the total is fixed at £6,000,000 to be equally divided between the German, English, French and American banking groups.

The terms are the same as have been insisted upon by Chang Chih Tung from the beginning of the negotiations, the provisions for expenditure and auditing being along the same lines as the Tientsin-Pukow agreement. The Chinese recently stated that it may be noted in this connection that the recent dismissal of officials of the Tientsin-Pukow railway was based on acts in no way reflecting upon the regulations for management of the finances of that railway.

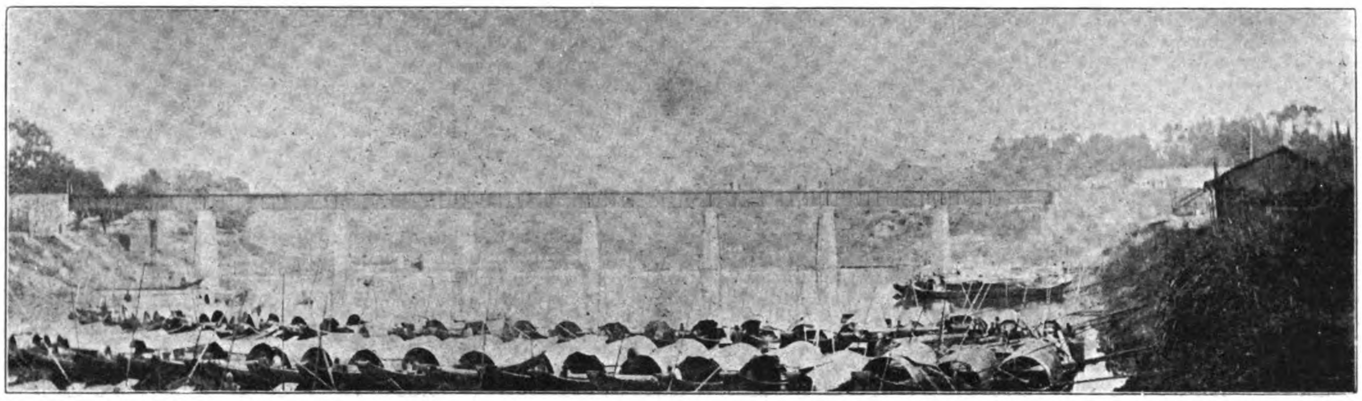
On the Hankow-Canton line, English and French engineers are to be employed; on the Hankow-Szechuen line German and American engineers. In the purchase of materials for both lines, China is to have the benefit of competition between the manufacturers of all four countries upon such materials as cannot be purchased in China.

It is understood that the price to China will be 95. The arrangement is the best yet made for China, as she has the prospect ahead of securing real competition on the part of foreign manufacturers, untrammelled by biased specifications or partially of prejudiced engineers.

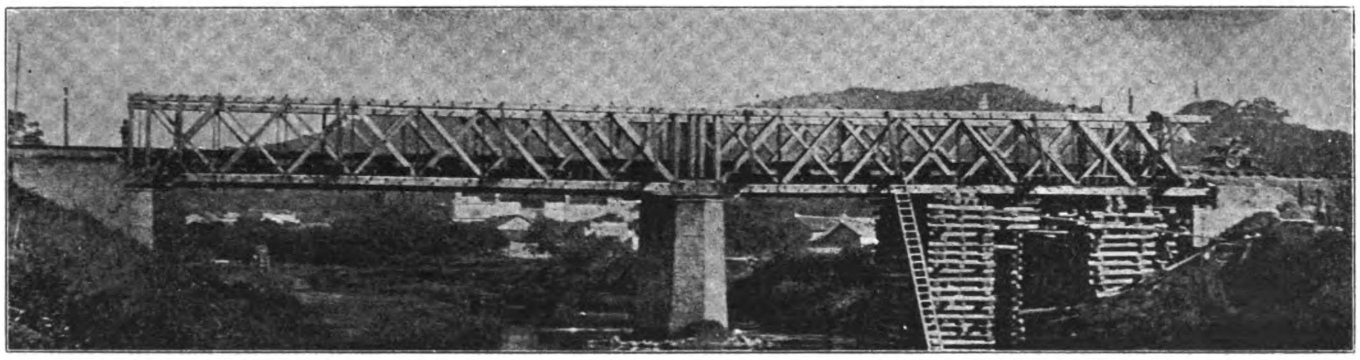
CHUCHOW-PINGHSIANG RAILWAY

This line was originally surveyed by the party under the American Engineer, Wm. Barclay Parsons, in 1898, at the time the reconnaissance was made for the Canton-Hankow Railway. Although this proposed branch was not included in the terms of the original agreement with the American-China Development Co., the right to take it over and operate it in conjunction with the main line was subsequently conceded by Sheng Kung Pao. Work had already been commenced on the road in 1899, under Chinese initiative to facilitate the transport of coal from the An-yuen Mines at Ping-hsiang to Chuchow for shipment to the Steel Works at Hankow. Capt. Rich, the American Engineer who originally surveyed the Peking-Hankow Line, was engaged by Sheng to superintend construction, and another American, Mr. McCalla, completed the work as Chief Engineer. Several American engineers were also employed in the work, and H. E. Taotai K. S. Low then railway engineer under Sheng also took a leading part in construction, specially in the bridge work. The cofferdam for the piers of the Liling Bridge were several times carried away, while under foreign supervision, and the case looked hopeless until Engineer Low assumed charge. By working night and day for four days the concrete foundations were put in, just in time to prevent a repetition of former disasters by the freshets. The first equipment of the road was American. Under German supervision of the mines these materials have since been largely superseded by German products. The line is standard gauge, well ballasted, but with soft wood sleepers. Including the rolling stock, bridges, terminals, stations, etc., the entire cost of the 70 miles of line was approximately Taels 3,600,000 or roughly $36,000 (£7200) per mile. It is interesting to keep this cost in mind, as the road was constructed under purely Chinese supervision, with Chinese funds, but with foreign engineers employed by Sheng Kung Pao. The nearest comparison to this line is the somewhat similar undertaking of the British Peking Syndicate railway, built with purely British funds, under British supervision and the use of British products, having the same objective—the transportation of coal from the mines to a navigable river. This 90-mile standard gauge line, cost to construct £614,600 or a little under £7000 per mile, or allowing for certain contingencies the same as the Chinese built Ping-hsiang line. The result is an object lesson of the capacity of the Chinese to handle their own funds. Admitting the truth of the basic principle of all British railway loans and allowing for a high percentage of "official commission" to the Chinese it is clear that under these conditions China can build her roads at less cost than when the same work is done by foreigners.

A correspondent of the "Celestial Empire" writing from Changsha on Aug. 5th last, gives us the latest accurate information about this line.



PINGHSIANG RAILWAY.—EIGHT 60 FT. SPAN PLATE GIRDER BRIDGE OVER THE LU KIANG NEAR LILING CITY



PINGHSIANG RAILWAY.—WOODEN TRUSS BRIDGE NEAR PINGHSIANG CITY

"Starting from the immense coal districts, 15 li (5 miles) east of P'inghsiang Hsien, in western Kiangsi, the line follows a very easy grade to a point under the south wall of the last mentioned city. Here a substantial brick depot was built, and the line proceeds almost due west to Lao Kuan (Old Customs Barrier), a few hundred feet beyond which it pierces the good stone wall forming the Hunan-Kiangsi border. From P'ing-hsiang to Li-ling, the first large station in Hunan is 90 li (30 miles), and the road does not enter the city, but skirts it about one mile to the north. A fairly good Chinese road connects with the city, but is troublesome, in that the Li-ling river has to be crossed, by native ferry, en route, and passengers who try to visit Li-ling in the hour allowed between the two early morning trains from An-yuen, find themselves rushed.

The Railroad crosses the Li-ling river on a good wooden bridge, brick piers, just a short distance west of the station, and several smaller stations are passed ere the terminus, and large station of Chu-cheo is reached. This place is situated on the Siang River, is 20 miles above Siang-tan, and 90 li, or 30 miles due due west of Li-ling Hsien. The Railroad is thus seen to be only 195 li long, or a little less than 70 miles, and runs due east and west. Its main business is the transportation of coal and coke, passengers coming in merely as an accommodation. Three classes of this latter are offered, and the rates are very reasonable; First Class is $1.44; Second $1.08; Third, 72 c. and of course the larger percentage of tickets are sold for the latter class.

THE AN-YUEN MINES

An-yuen, or Peaceful Spring (or Fountain) is the name given to the immense mines developed among these low-lying hills just to the east of P'ing-hsiang Hsien, Kiangsi. The name does not appear on the ordinary Chinese maps, and is likely of recent origin. The town is situated at the headquarters of the Siang-tong (Li-ling) River, all the water on the other or eastern slopes, of the hills, flowing east into the Yuen-cheo Fu (Kiangsi) River, and thence to the Po-yang Lake. Thus an easy gradient is had from end to end of the line, and it is noticeable that no deep cuts have had to be made the entire distance. The Railroad in fact follows the ancient, and formerly much used, Great Barrow Road from Siang-tan and Chang-sha, in Hunan, to Yuen-cheo Fu, Lin-kiang, and Nan-ch'ang Fu, in Kiangsi. Great quantities of the small Mandarin oranges are grown on the P'ing-hsiang plains. The very name

of the town indicates the nature of the country. Much grass-cloth is produced in the district north and north-east of P'ing-hsiang, this being well-known in the two Provinces as Wan-tsai "hsia-pu."

The Mines being the all-important industry of An-yuen, and the one reason for the existence of the Railroad, we will begin here to describe some of the noteworthy things that strike the visitor. Having heard that there had sprung up quite a Chinese town here, with also a well laid out foreign settlement, and many foreigners housed in comfortable foreign houses, and that great shops had been built, in which, it was averred, anything from a pin to a locomotive could be turned out, one was in a measure prepared for the many surprises of a personal visit.

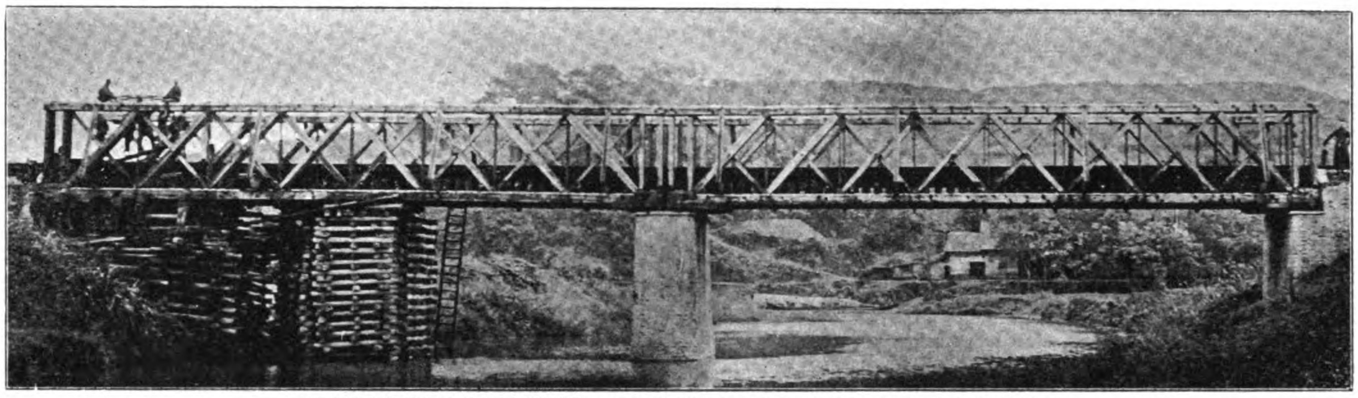
Stepping from the train, one seems all at once to have arrived at a miniature Pittsburg. Tall, well built chimneys, clouds of smoke, the roar of furnaces and machinery, the rumble of trains or coal cars being pushed in all directions by blackened images called "men," and then the beautiful sight of the various houses, club, administration buildings, offices, etc., neatly placed on hill-side or top, or adjacent to the great shaft from whence issues the black stream of precious coal.

To the left, or north of the mines and foreign dwellings, etc., is situated the native town which has grown up, and here can be found a full 10,000 men, from the three provinces of Hupeh, Hunan and Kiangsi, with the latter naturally predominating. These are the miners and workmen who are worked in two shifts, day and night. Formerly a holiday was given twice per month, on the 1st and 15th of the Chinese moon, but the demands for coal, and the more commercial Germans have reduced this down so much that there is said now to be no cessation of work.

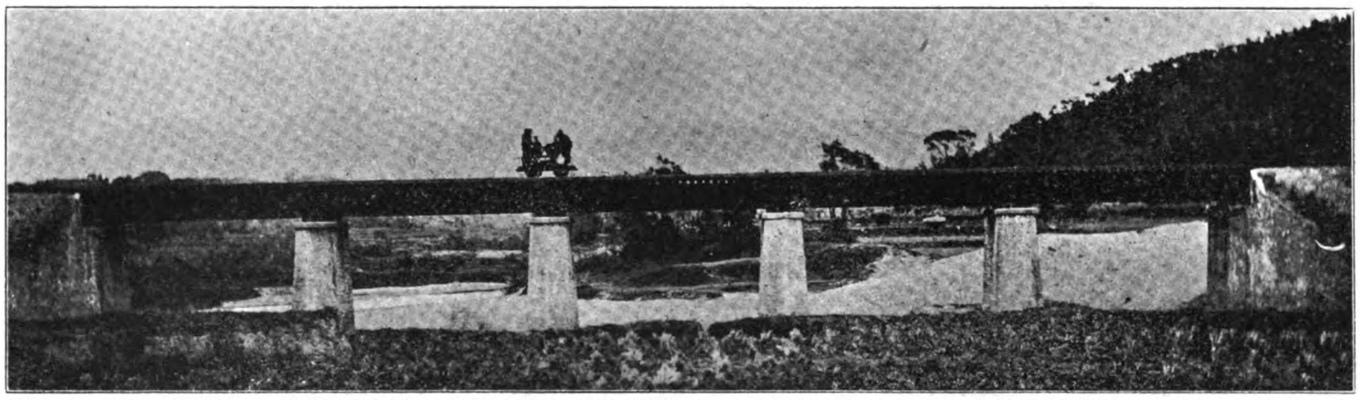
COAL AND COKE.—The three great mines of An-yuen thus work night and day, sending out a continuous stream of coal, which is transported, for the greater part, to Hankow and Wuchang. Some of it even now finds its way to Japan. The coke is burnt on the spot, in the great furnaces erected for this fast growing industry, and the output has been lately much increased. The largest of three coal mines is a vertical shaft, opened up on three levels below, and the total output of coal and coke at present is about 1400 tons, with capacity for at least one third more. The other mines are opened horizontally into the sides of the mountains. The whole district, for a distance of some 10 li, is said either to be owned by the Company, or that they effectually forbid other mining operations, under the contention that their own business might suffer. From 300 to 375 tons of coal and coke is sent down to Chu-cheo by each train, and from 4 to 6 trains are run each way, daily. These run at only about 20 miles per hour, so that the time, including stops, is about four hours. The proportion of coke and coal at the present seems to be about two tons of coal sent down, to one ton of coke. This coke is made from the coal screenings, or the fine coal, and the most of that seen appeared to be under the average for size, and 2 and ½ tons of coal are required to produce one of coke. This is burnt, in tightly closed parallel furnaces or ovens, for a considerable period, then is forced out on to a wide berth alongside the Railroad track, water is freely thrown on it from a hose, to cool it, and it is at once loaded into very high, steel built cars, expressly made for the purpose, (and made to dump the whole load easily), and off the train whisks for Chu-cheo.

A GERMAN SETTLEMENT.—The mines are at present operated by, and in charge of a colony of 24 Germans, among whom are 5 married couples, with 4 or 5 children. These all live in the various houses noted above, and, while it is not very high here, they remain throughout the summer months. Mr. Leimung is Engineer in Chief, and a Prof. Schmidt has charge of the College of Engineering, Mining, Language, etc., while at least two doctors are on the spot, Drs. Schmidt and Zimmermann. In the school likely young men are trained for the many branches that require more skilled labour. The railroad engineers, conductors, etc., are all Chinese, and there is no foreigner at Chu-cheo except Capt. Nielson, who has charge of the Transport Department, engaging some 40 Chinese clerks and all housed in a large, two-storied foreign building near the R. R. terminus. Here are located the large coal and coke yards, and much of this is now loaded directly from the trains into the large lighters towed down by the recently acquired German steamer Mei-yu, of Yangtsi R. service. For the Company's convenience the Customs have opened a special Office adjacent to the Transportation Building, placing Mr. H. Wyatt in charge. The P'inghsiang coal sells at from 4 to 6 Taels per ton, and the coke brings 10 and 11, and is now being sold at Changsha.

The Hankow-Peking Railroad, if ever built is destined to pass through the small town of Chu-cheo, and then easier connection can be made for the mines; at present launches run each morning from Changsha and Siangtan and about two days is required for the round trip, with one night over at the mines.



PINGHSIAN RAILWAY.—WOODEN BRIDGE AT NGAN CHOW ISLAND



PINGHSIANG RAILWAY.—30 FOOT PLATE GIRDER BRIDGE ACROSS THE SHA-HO NEAR LILING CITY

IMPERIAL PEKING-KALGAN RAILWAY

In the late seventies, a band of Chinese students were sent to America to be educated. Before their studies were completed they were recalled by the Chinese government, as it was thought they were imbibing ideas prejudicial to the old established order of things in their native land. Some had already graduated and up hill fight for recognition. From insignificant clerkships and minor official positions, many of these youths have gradually risen, through sheer pluck and superior intelligence, to the most important offices of the Empire. Tang-Shao-yi, the distinguished diplomat, Liang Tung-yen, the Minister of Foreign Affairs, Liang to the top. And among this group of students who went to Yale, was one Chan tien-yu. Chan had a mechanical turn of mind, and while his comrades went in for law and general studies, he selected civil engineering as his special hobby. This was an extraordinary thing for a Chinese youth to do thirty years ago, but Chan seemed

were pursuing post graduate courses, but the majority were cut off just at a time when they would have passed their final examinations, had they been permitted to continue. On their return to China, instead of receiving marks of distinction, they were ignored, and treated as traitors. Those whose families were well to do, fared well, but the lot of the others was a hard Ju-hao, the Manchurian Councillor, Chung Mun-yew, the transportation director, Sin Liang Chentung, another diplomat, Chow Chang Ling, a Railway Director, Low Kou Shiu, the Railway Expert, Kwong, the engineer, Tong, the telegraph manager, Kwang the navy yard Director, and many others make up the list of those who have struggled from the bottom to divine the future and plugged ahead, with tripods and wheels and finally mastered his subject and graduated as a Civil Engineer. His school boy friends did not like his name Chan, and they dubbed him "Jimmy" which is the sound of his name in the Peking dialect, and through his school days he was familiarly known to all under this sobriquet, and his com-

panions from China followed the lead of the American boys and Chan became Jimmy, and Jeme it remains to this day. After graduating from Yale, Chan went to England and matured his engineering education, and was finally elected some years ago a member of the Institute of Civil Engineers. On returning to China, he looked around for a position, and was given employment by Mr. Kinder on the I.R.N.C. as Assistant Engineer. The foreigners made Chan work hard and tried to rub it in that he could never be a real engineer, despite his degree. But he persevered and for many years was kept out in the field. From Assistant he was promoted to Resident Engineer of a section, and was shifted around to the various posts on the road. But despite all the knocks of his foreign companions who viewed his work with envy and jealousy, Chan succeeded in pleasing his Chief, Mr. Kinder. The wheel of fortune gradually turned for him as it had for his old schoolmates, and several years ago saw his friends high in power under Yuan Shih-kai, and his old school chums, Liang Juhao, Chow Chang-ling, Tang Shao-yi and others, directing the road of which he was only a subordinate engineer. When China decided to build the Kalgan Road, without foreign interference and under the supervision of her own engineers, there was only one logical choice for the man to direct the work, and much to the discomfiture of foreign aspirants for the position, the modest and unassuming "Jimmy" was appointed to the task. "Pooh! Pooh!" the foreign engineers cried, "this little apprentice boy of Kinder's can never do the work, there is not a Chinaman living who can push a railway up the Nankow Pass to Kalgan, with its rise of 1,800 feet in 10 miles. The scheme is almost impracticable and a most serious engineering proposition for even a successful foreign engineer to undertake, let alone an inexperienced Chinese apprentice," said the envious ones. But Chan tackled the job the critics said was impossible and to-day, after many trials and much difficult work, the road with over a mile of tunnels has been completed at a cost of under $50,000 gold per mile, a record in mountain railway building.

Honors have been heaped on the successful engineer and while his intimates still speak of him affectionately, as plain Jim, to the world he is now His Excellency Taotai Chan-tien-yu, Consulting Engineer to the Imperial Board of Posts and Communications, and destined for much higher and better gifts from his government.

There is a reason for his success. China's honor and the capacity and honesty of her sons were at stake on this undertaking, and everybody pulled together to show the foreigner what China could really do when free from outside interference. Do the critics give him any praise for the work? Not yet. They are waiting for a tunnel to cave in, or a train to fall down an embankment to be able to say, I told you so! When the first section was completed, Jeme made a speech at the opening ceremonies, in the presence of several foreign engineers of neighboring railways, and ended by proposing a toast to his guests, particularly the engineers. To the utter disappointment and chagrin of all present the foreign engineers displayed a boorish contempt for etiquette and remained silent. Comment is superfluous.

I intended to write a special description of the Kalgan Railway, but this story can be told best by the Chinese themselves. Some time ago an article on the road appeared in the *World's Chinese Students' Journal* of Shanghai, which we know is authoritative, and worthy of reproduction here. We commend this story to all who are interested in Chinese Railways, as it is an explanation of the sentiment so many people conflict with anti-foreign ideas and reveals a purpose on the part of China to manage her own railway affairs in the future. It follows:

"Of all the railways in China, which have been constructed or are under construction, none has roused more interest or attracted more attention than the Peking-Kalgan Railway. Some of this interest and attention is friendly and sympathetic, but sad to relate people have been not wanting who visit the line with the sole object of 'blowing open the fur to discover the blemishes,' and others for reasons which will be patent to the reader after the perusal of this article, pass sweeping criticisms and make charges without having made careful investigation and without any knowledge of the facts. To the Chinese people generally, the railway is regarded with pride, because it is the first one constructed entirely with Chinese money and by Chinese engineers, there being not a single foreigner employed on the line in any capacity. The successful manner in which the construction work is being carried out is a striking object-lesson of what can be accomplished by our people who have received a technical training, and acts as an incentive to the other lines capitalized and managed by our own people. The limited number of qualified Chinese engineers is, of course, at present a serious drawback, but with the increased number of students who are being trained both at home and abroad, the time is not far when much of the engineering work, which is being undertaken and which will be undertaken, will rightly and properly fall into Chinese hands.

The Peking-Kalgan Line begins at Liutsun, about two miles east of Fengtai, on the Peking-Tientsin Railway, and ends at Kalgan, and is altogether 130 miles in length. The line when completed will connect the capital of China with one of the largest cities in the province of Chihli.

To our own people Kalgan, which is Mongolian and signifies a barrier or gatebeam, is better known under the name of Changchiakou, and is generally associated in their minds with disgraced officials, who sometimes have been compelled to make their temporary residence there by command of the Emperor. The city lies almost due northwest of Peking in the line of the Outer Great Wall, commanding one of the most important passes between China proper and Mongolia, and also the main road of the overland route between China and Russia. Its geographical position is given as in 40° 50′ N. lat and 114° 54′ E. long., and its altitude as 2,810 feet. Like all Chinese towns in the north, the streets are very wide, to allow the passage of numerous mule carts, but Kalgan can also boast of many excellent shops, which bear testimony to its prosperity. Though its population is estimated at only a hundred thousand, the town is important in that it is the seat of an extensive transit trade. Nearly all the tea that is sent to Russia by the overland route goes through this town, and it is a very common sight in the early part of autumn for long lines of camels to arrive from all quarters for the conveyance of tea-chests from the town to Kiakhta. It is estimated that the present traffic between the frontier and China proper alone involves the employment of fifty thousand camels, not to mention the thousands of ponies, mules, donkeys and carts which are also engaged in this great overland trade of North China. The principal merchandise going northward consists of tea and piece goods; while that southward includes fur, hides, camel's hair, Chinese medicines, wool, fruits, etc. Large quantities of soda are manufactured in Kalgan, and when the means of transportation are improved, much of it will no doubt be exported.

THE ENGINEERS WHO BUILT THE KALGAN RAILWAY
H. E. JEME TIEN-YU, DIRECTOR AND CHIEF ENGINEER, IN THE CENTER
(From left to right, seated) YUE YA YO, TSA SUI FOO JEME TIEN YU, NEE TSE YUE, CHENG YING TUNG. *(Standing on right)* CHE CHIH-YUEN. *(Standing on left)* CHUA CHIH-HAO

Owing to its difficulty of access, Kalgan is not very well known to the world, though many Russian merchants have for years established their residences and warehouses just outside the gate. Whith the completion of the railway, travellers will no doubt include the town in their tour.

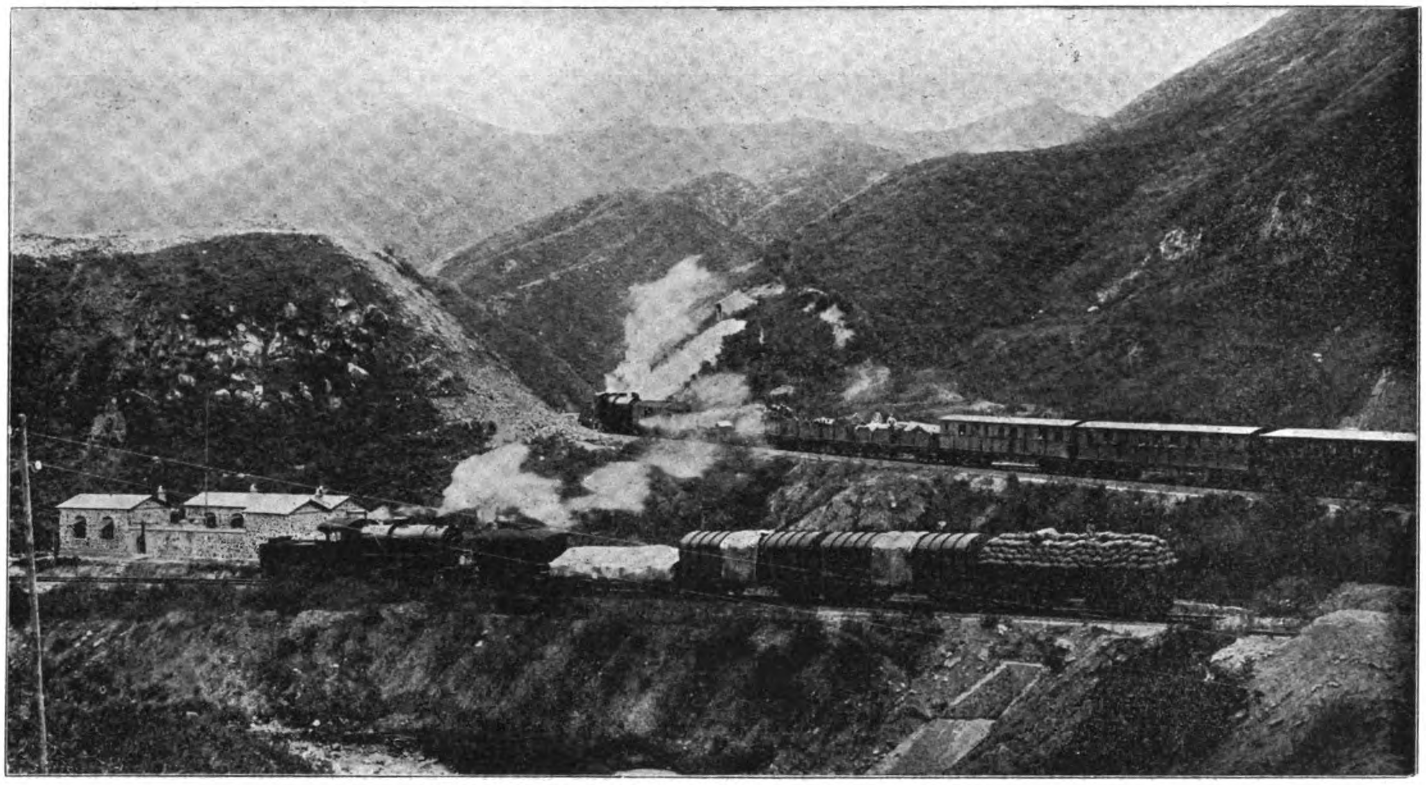
"From the political standpoint, the railway is very important to our Empire, for it will tremendously facilitate communication between Mongolia and China proper. The dependencies of our Empire have been one after another lopped off from their parent country, and Mongolia is one of the very few remaining. Already there are rumors of its falling into the hands of a foreign power, who has been striving with might and main to gain a secure and permanent foothold in that region, and who by wiles and stratagem has been hoping to undermine the loyalty of the tribal chieftains. The railway, which it is hoped will be ultimately extended to Urga (K'urun), and even to Kiakhta, the frontier town, will, by binding as it were the Mongolian dependency and Peking with an iron chain, strengthen beyond power of expression the bond between the two.

"Such being the commercial and political importance of the line, (which is fully realized by the high authorities in Peking, especially by H. E. Yuan Shih-k'ai), several foreign powers tried very hard to secure the concession for its construction. It was a great disappointment to them, when it was announced that the line would be built with a fund to be drawn from the annual surplus of the Imperial Railways of North China, and that the work would be entrusted to Chinese engineers. Jealousy of the accession to power and prominence of our technical men, for whom their Western fellow professionals had entertained suspicion as to their ability, and soreness over the failure on the part of foreign concessionaires to obtain the right and privilege of building the line have been so intense, that at the least rumor telegrams from engineers (foreign) of neighboring railways fly around for information with the unkind hope that the rumour may be verified. Representatives of responsible and respectable corporations have also openly published articles, in which disparaging statements are made of the railway. Many reports of accidents which never happened have appeared in papers, and from all appearances these reports have been disseminated at the instigation of unfriendly parties.

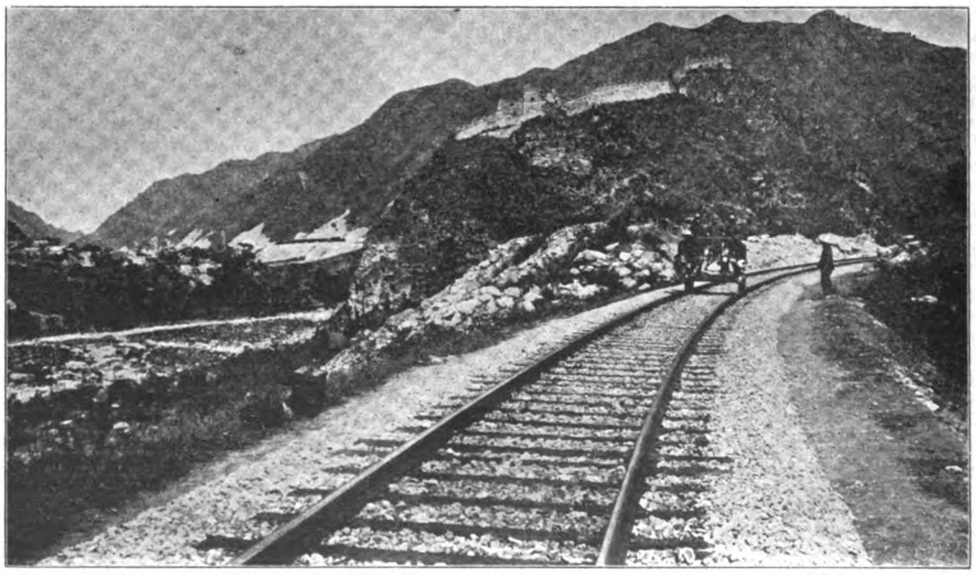
"Let me, however, turn aside from the exposition of such disgusting and unworthy actions, and continue with my description of the work that has been accomplished by our own engineers. The line was surveyed by the Chief Engineer, Taotai Jeme Tien-yow, Ph. B. (Yale University), A.M.I.C.E. (London), an account of whom appeared in the last number of the *Journal* and his staff in the summer of 1905, and the construction began in the latter part of October of the same year. The estimated cost of the whole line is Tls. 7,286,660, which is very low indeed, considering the engineering difficulties in the Nankow Pass, and at Kimingyih, which will be described in the latter part of the article.

"As I have already intimated, there is not a single foreigner employed in any capacity; the resident engineers, of whom there are four, the two assistant engineers, and the numerous student engineers are all Chinese. In the traffic department also, all the employees, from the Traffic Manager, the station masters, down to engine-drivers and guards, are Chinese, and since the opening of the first section in October of last year to traffic, the trains have been running in clockwise schedule six times a day without a single mishap, thus proving conclusively that our people are able not only to build a railway, but also to run it successfully. The policy of certain lines under foreign management to import and employ foreign unskilled labor, especially Indians, as guards, linemen, flagmen, etc., is certainly an indefensible one, and in thus crowding out our own countrymen from positions to which they have legitimately and naturally the first claim, will gain for themselves the odium and antagonism of all classes.

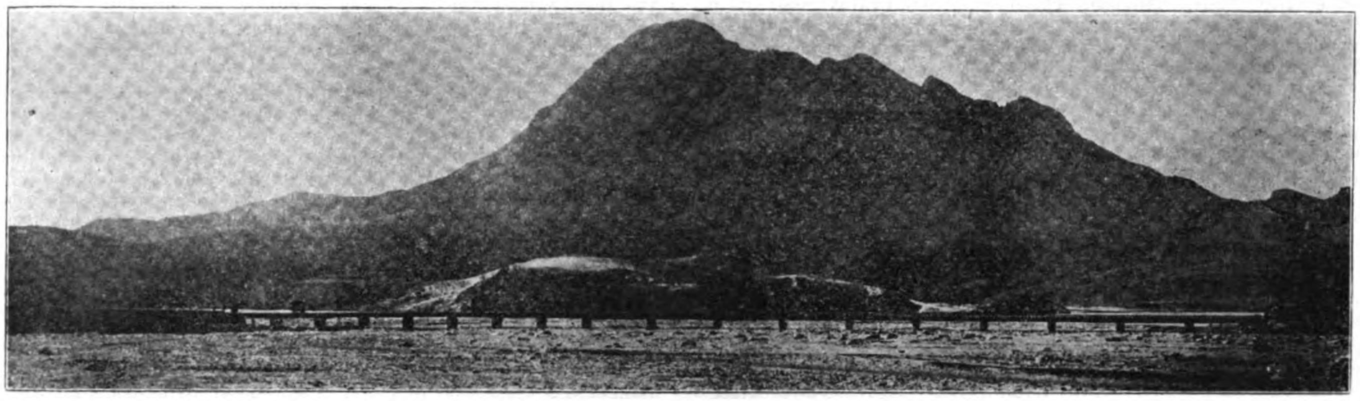
"The first of the four divisions, which has been opened to traffic, is 32 miles long, beginning at Liutsun and ending at Nankow at the mouth

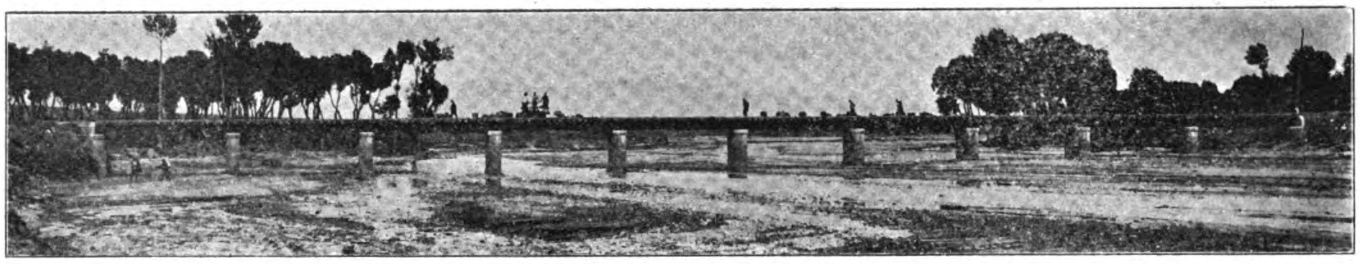


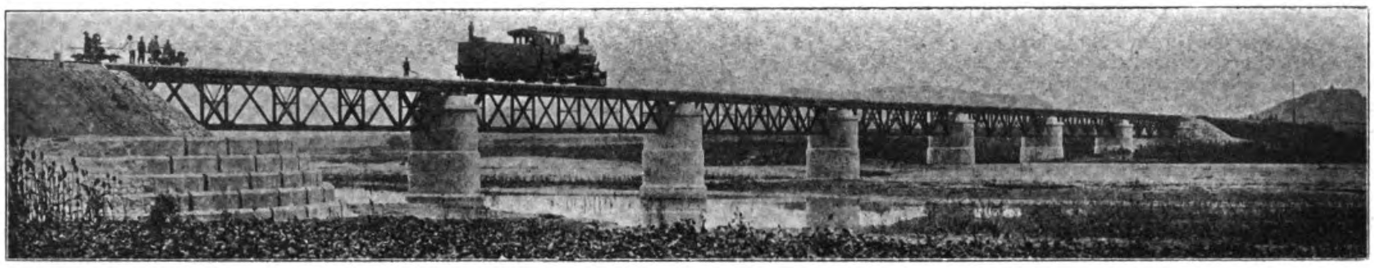
PEKING-KALGAN RAILWAY.—IN THE MOUNTAINS

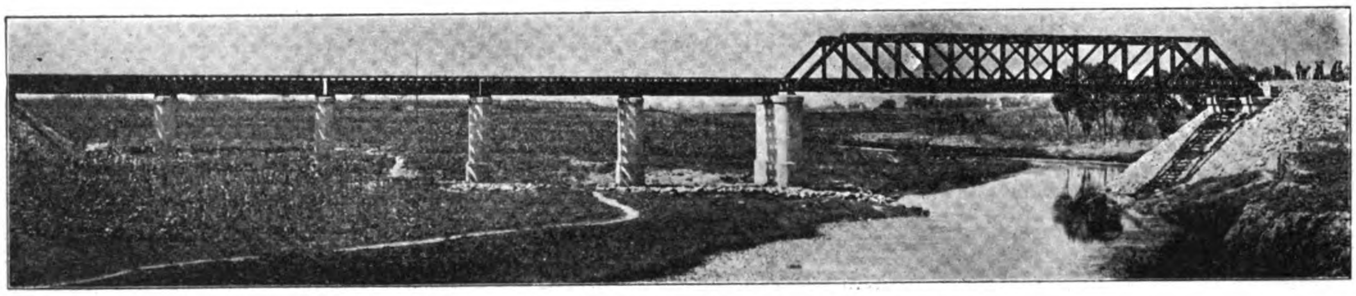


PEKING-KALGAN RAILWAY.—THE GREAT WALL





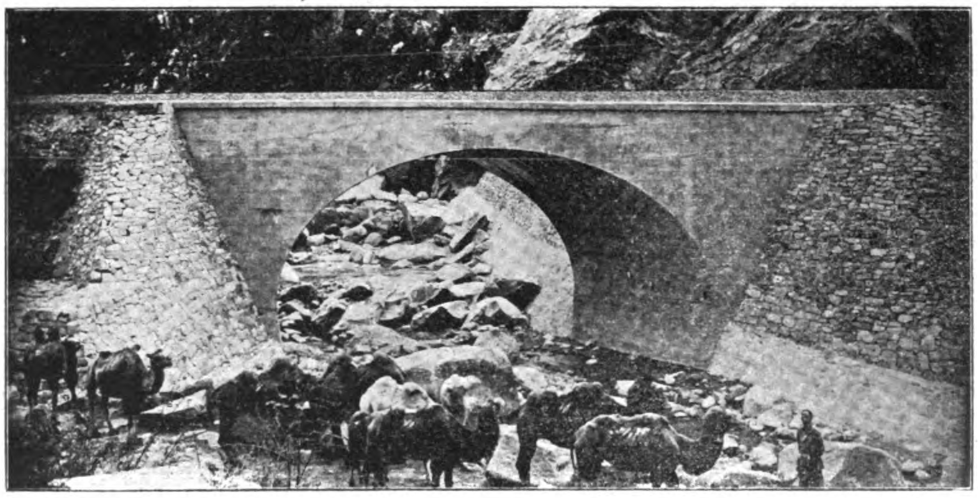




PEKING KALGAN RAILWAY.—TYPES OF BRIDGES

of the Pass. The construction commenced in October, 1905, and within the short space of nine months, the construction train reached the Pass. The formal opening took place on the 30th of September, 1906, and many guests, both foreign and Chinese, proceeded to Nankow to witness the ceremonies. The late H. E. Hu Yu-fen, Vice-President of the Ministry of Posts and Communications, presided at the function, and Taotai Jeme Tien-yow made a speech in English, in which he cursorily delineated the work accomplished and gave a sketch of what remained to be done. He ended by proposing a toast to the guests, particularly to the engineers of sister railways, but to the utter astonishment and disappointment of all no one responded, though several foreign engineers were present. Many high metropolitan officials came to show their interest and pride in the line.

"Starting from Liutsun, a traveller on the Peking-Kalgan Railway would traverse through fields covered with dense growth of *kaoliang*, till his field of view suddenly expands as the massive and well-preserved walls of Peking



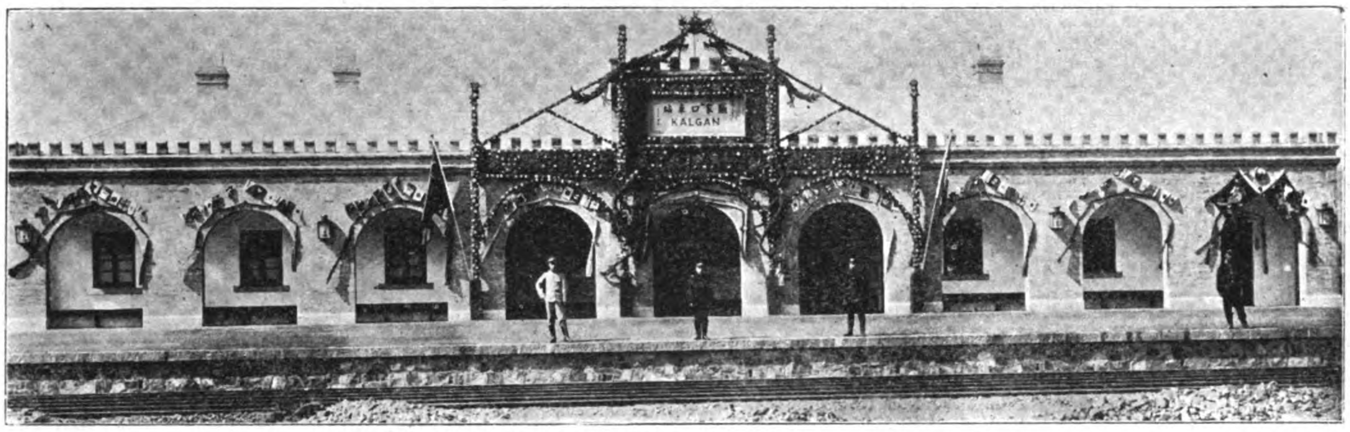
PERING-KALGAN RAILWAY.—CONCRETE ARCH BRIDGE ACROSS MOUNTAIN STREAM

gradually come into sight. Hugging closely the city wall, the train reaches the first station, Kuanganmen, which is not an important stopping place. Still following the direction of the city wall, the train next makes a stop at Hsichihmen, one of the busiest gateways of the capital, for it is the one Their Majesties the Empress Dowager and the Emperor frequently pass through on their journey to and from Eho Park. For a large part of the year metropolitan and provincial officials may be seen in carriages or the humbler mule carts wending their way through the gate and on the magnificent macadamized road leading to Eho-yuan. From Hsichihmen onward, the railway gradually strikes away from Peking and makes for the open country, where the scenery is quietly pretty. As one approaches Chingho, the next station, hills which had appeared in the dim distance on the left now come closely into view, and Wanshoushan, the summer home of Their Majesties, with its glittering towers and shining roofs, is pointed out, nestling in the valley of the nearer hills. Officials proceeding to Eho-yuan sometimes take the train as far as this station, and then proceed by sedan chairs to their destination.

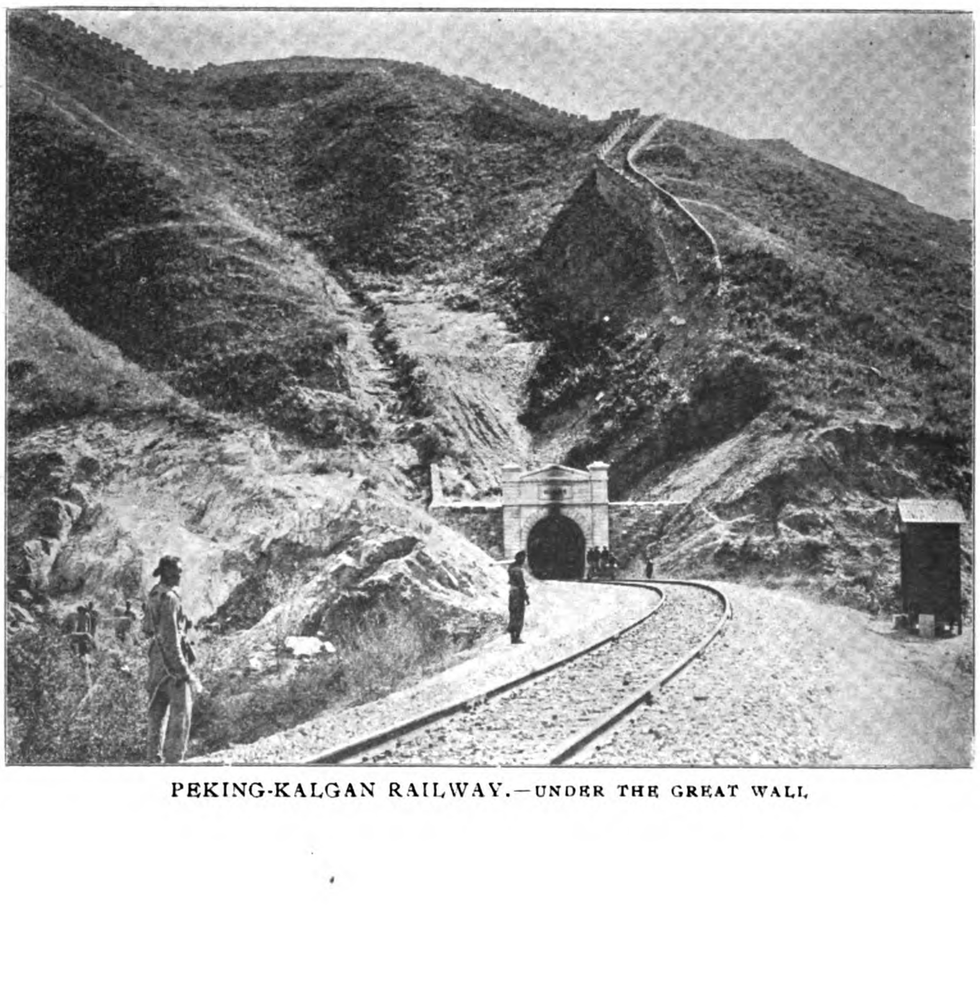
"At Shaho the train crosses the principal bridge of this division,—a really magnificent structure, consisting of five spans of 30 feet each and one of 110 feet. The steel superstructure of this bridge as well as of other bridges, with the exception of the 110 feet span which was made in England, is supplied by the Shanhaikuan Bridge Works. Mr Kwong, the present chief engineer of the Canton-Hankow Railway, was in charge of this division and to him much of the credit for the splendid work in this division is due. From Shaho onward the ground begins to rise imperceptibly, and the grade gets higher and higher as the train approaches Nankow, the last station before entering the famous Pass. The line describes a tremendous curve just before reaching the station, thus enabling the traveller to sweep his eyes over the stretch of country just traversed by him. The village or town of Nankow, which is situated almost exactly at the mouth of the Pass, is separated only by about half a mile from the station, and no doubt from now on it will begin to grow towards it, as traffic increases in the near future. What with the buildings already constructed round about the station for railway employees, the sheds for locomotives, the embryo machine shop, under the charge of a competent and experienced Chinese mechanical engineer, and other buildings rapidly springing up, the place already looks quite populous and respectably busy. Speaking of the machine shop, let me add that repairs, alterations, and improvements of all kinds are made here, and it is hoped in the near future, the sphere of work will be greatly extended and facilities provided so that even cars may be constructed. At present, however, besides the services enumerated above, the machine shop is also greatly useful in making iron castings right on the spot.

Turning to the more technical side of the work accomplished in this division, I was informed that there are altogether 21 bridges and 17 drains, aggregating 1,352 feet (linear) of openings. All the bridges are constructed of concrete, and it is hardly necessary to add they are all well-made and of a lasting character. In fact, it may be asserted that there is nothing of a temporary character about anything on the line. People in this world, however, very often associate exorbitant prices with good quality, and low prices with poor quality of materials and workmanship, believing in their simplicity that they are inseparable concomitants, but the attention of my readers is called to the low price paid in this division for earthwork and materials, which has enabled the construction of a first class line at an unusually reasonable rate. For earthwork at the Liutsun end, it averages only 17 cents per fong, or, expressed in another way, 4 cents per cubic yard. At the Nankow end, where high embankments have to be made out of boulders, the average price is 27 cents per fong. Prices just as reasonable and low are charged for broken stones for concrete which varies from $1.20 to $2.00 per fong delivered on the spot, and sand, when collected locally, costs only the ridiculously low price of 30 cents per fong. The explanation is not far to seek, for on the Peking-Kalgan Railway, all these materials are supplied to the engineers *directly* by petty contractors and there is, therefore, no opportunity for big contractors to monopolize the tenders and abuse their privilege by subletting and re-subletting their contracts, a system of 'squeezing' which has rendered engineering work so expensive in other parts of China. Nor are there interpreters of the character as has been reported elsewhere who receive Tls. 50 per mensem and retire after a year or so with half a lakh. There is not a *single* interpreter on the line, for they are not needed, and the absence of middlemen results in economy, unattainable in the nature of things where the personnel and the system are not similar.

"Along the 32 miles of this division, there are 3 water-tank houses, 6 foreman's quarters, 18 plate-layer's cabins, 2 engine sheds, 2 locomotive stores, 1 machine shop already referred to above, 1 turntable and 2 coaling stations. All the structures are built upon modern principles, and the architecture, a very simple but pleasing one, conforms to the adopted type of this railway. Employees are provided with comfortable quarters near the stations, for which they pay a reasonable rent, and altogether there are nine groups of these. For the engineers and the railway police, special buildings are being erected; nor are tourists forgotten, for a hotel with excellent accommodations is provided by the railway. To those of our readers unacquainted with Peking and its vicinity, I may say here that Nankow has been for years the stopping place of tourists, who desire to



PEKING-KALGAN RAILWAY.—STATION AT KALGAN

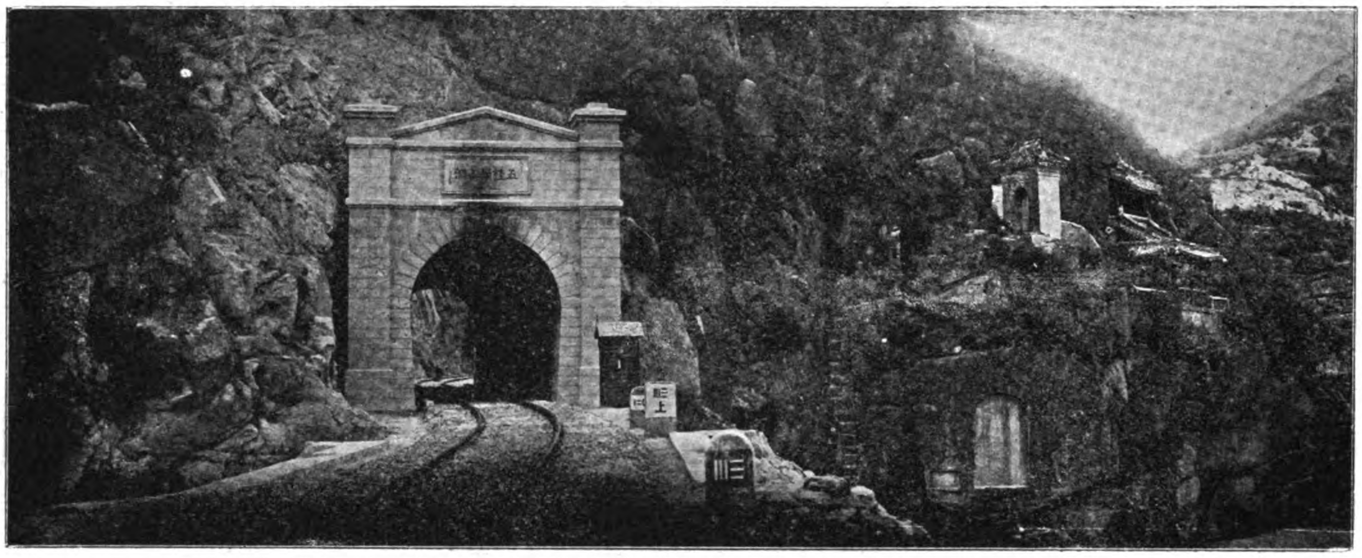


PEKING-KALGAN RAILWAY.—UNDER THE GREAT WALL

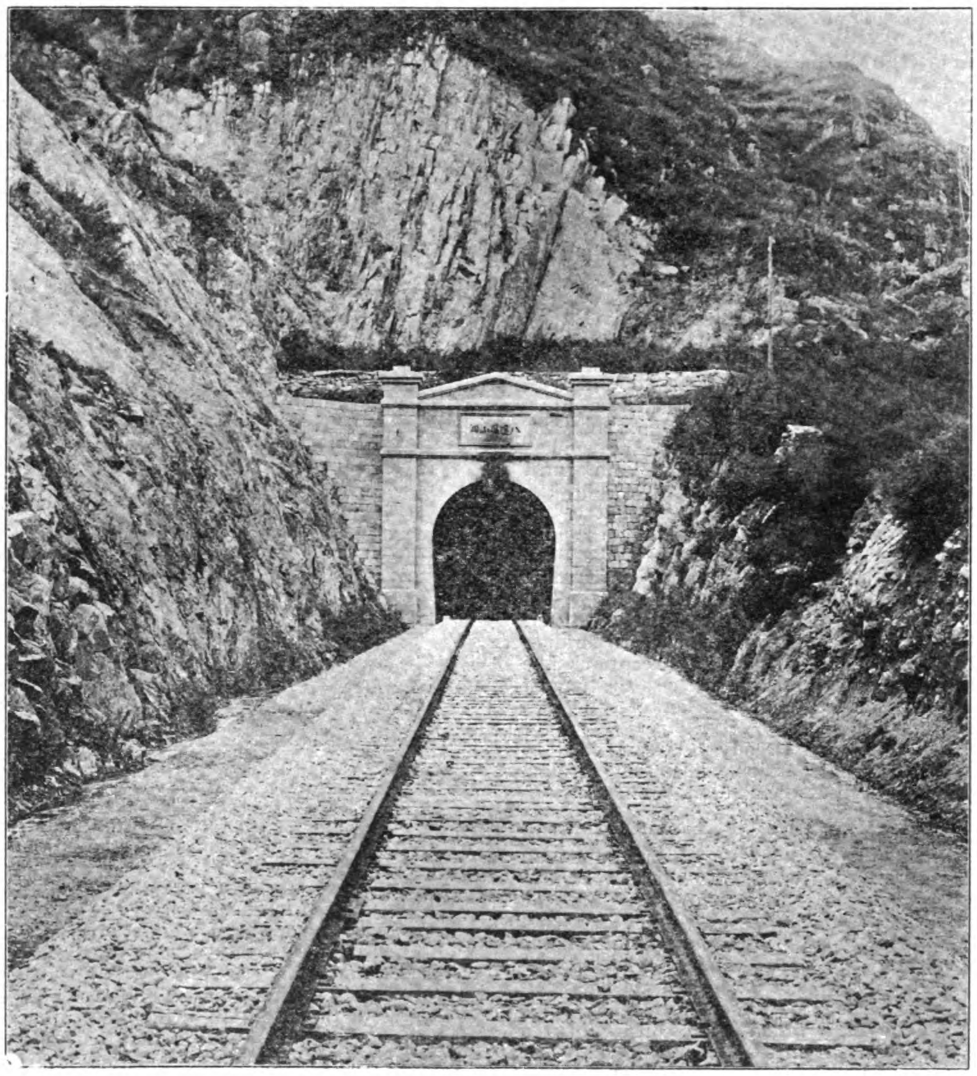
visit the Inner Great Wall at the northern end of the Pass or the Ming Tombs, a trip to either of which can be comfortably made from the town in one day Up to the present visitors have been compelled to be satisfied with the disagreeable and uncomfortable quarters of a third class Chinese inn, bringing with them their own food and drink. With the construction of the railway, not only the two days' dreary and jolting journey from Peking in a mule cart, with all its attendant misery, especially in inclement weather, is done away with, but the traveller finds on his arrival at Nankow after the pleasant ride on the train all the comforts and even luxuries of a modern hotel awaiting him. Our people have not acquired the science of attracting and of catering to tourists as our neighbours the Japanese have done, but I hope the examples set by this railway will be adopted by the other lines, so as to enable travellers to see some of the historical and beautiful spots of our country instead of leaving China with the impression that all there is of her are the few treaty ports.

"As to rolling stock, the engines in use now were bought from the Imperial Railways of North China. Special engines, the Mallet Compound Articulated, have however been ordered from England, and will arrive shortly to be used for working trains for the steep grades of the Pass. Japanese sleepers are used on account of their reasonable price, but in the Nankow Pass, in view of the heavy grades, special creosoted sleepers are employed with provisions towards the prevention of creeping of the rails. The rails on the main line are 85 lbs. Sanbergs; for sidings and branch lines 60 lbs. rails are employed. The whole line is of uniform standard gauge. All freight cars, both open and covered, are of 30 ton capacity, with wheels on bogies to insure easy running on sharp curves. In accordance with the system generally adopted by railways in China, first and second class passengers travel in composite cars, and the third class cars are covered, with benches along the sides. In spite of the fact that only a fourth of the whole line has been completed, and that Nankow is an unimportant town in itself the receipts amount to $10,000 a month.

"When the construction of the line was first proposed, many people believed that the Nankow Pass would present difficulties insuperable from the engineer's standpoint, and to those who have visited the Pass on their pilgrimage to the Great Wall the assertion did not sound unreasonable. The ground has a rise of 1,800 feet within the short distance of 10½ miles as far as Pataling, whence it goes down grade again. The narrowness of the Pass precludes the employment of curves with length of an radius. Our Chinese engineers are, however, firm believers of the old adage, 'Where there is a will, there's a way,' and so the Resident Engineer of this section was despatched there early to make an exhaustive survey, with the view of securing the best route with the lowest grades. Some idea of the pains taken and the physical and mental labor undergone can be formed by the reader when I say that no fewer than five distinct lines were surveyed, and finally the best one from every point of view was selected. Generally speaking, the railway follows closely the great highway, which has existed for hundreds of years, but once in a while it disappears in tunnels, short ones at first, to emerge again into the open till Pataling (the highest point of the Pass, where the Great Wall is seen to its best advantage), when the last and longest tunnel is reached, and this time the track does not appear again till about a quarter of a mile beyond the Wall.



PEKING-KALGAN RAILWAY.—SHORT TUNNEL



PEKING-KALGAN RAILWAY.— ENTRANCE TO PATALING TUNNEL

"In the Pass the cut and fill amount to 150,000 and 300,000 fongs respectively, the labor costing about $450,000, or an average of $1 per fong of cut or fill. Half the cut is through solid rock and fills are made by cutting down the hill-sides. The maximum cut is 80 feet and the highest fill is 65 feet. There are four tunnels, the lengths of which are 1,200 feet, 150 feet, 450 feet, and 3,570 feet respectively. The first one pierces the limestone region near the historical spot, Chuyungkuan, where is situated the famous white stone gateway, carved all over with figures of human beings and animals and in the archway with characters in Chinese, Mongol, etc. Here, according to the novelist, Yang Yen-chao, a famous general of the Sung dynasty was stationed, his headquarters being the White Tiger Hall.

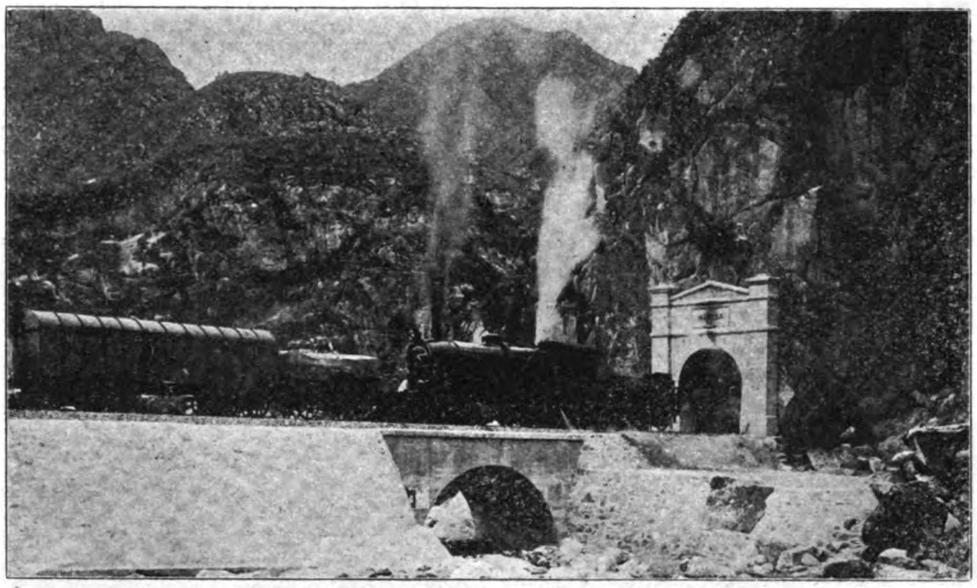
"The driving of the tunnel occupied the space of six months, the slowness being explained by the fact that all the work was done by hand labor. The accuracy of the work was tested when the two ends met. In line, it was exact, and the length has an error of a few inches. The second and third tunnels, though driven through granite, have been finished and lined, the work having been accomplished without any difficulty whatever.

"The fourth tunnel, the longest one existing in China, occupies a romantic stuation, for it runs 243 feet below the Great Wall at Pataling, the northern gateway to the Pass. Again, the engineer finds facing him granite and hardpan, which abound in this region. To quicken work, a shaft ninety feet deep was sunk about halfway so as to enable the workmen to drive from four ends instead of two. This shaft is lined with cut stone, and will be retained afterwards for the purpose of ventilation. Near the north end of the tunnel a temporary air shaft forty feet deep was driven. In the work of driving, in addition to hand labor, one set of Schram drilling machines is used, and for ventilation, a 48″ Musgrave fan, bought through Messrs. John Birch and Co., London, was installed at the shaft. Chinese wind-boxes used at the two ends have been found to be very serviceable. For hoisting water, a double winding machine which works by an automatic filling water drum, is set up at the shaft, and the blasted material is lifted in special cars by means of a cage. All but 900 feet has been driven, which is marvellously quick work, considering that operations in this section did not commence till March of last year, and the whole tunnel will be ready and lined before next summer. The thoroughness of the work is evinced by the fact that all the tunnels will be lined throughout to prevent any possible accident, and for the arch, concrete blocks will be made use of. Finally, cut stone portals will add to the neatness of the tunnels.

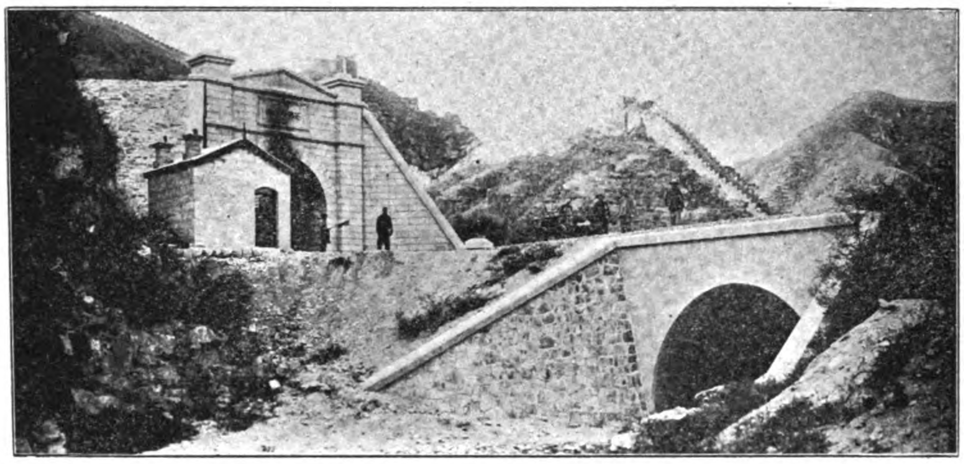
"One can appreciate the nature of the undertaking in the Pass better, when he is informed that for five miles of the ten and a half, the grade rises at the rate of 1 in 30, that is, for every thirty linear feet traversed by the line, it rises one foot in altitude. Within the Pass, there will be 45 curves. For those of short radius, transition curves, formulas for which are being developed by the Chief Engineer, will be used. There will be also 19 bridges and 36 drains. With a few exceptions the former consist of concrete arches, the largest of which is of 40 feet span on a skew of 45 degrees and 65 feet high.

The railroad has already been extended to Chuyungkuan, and trains will travel through the Pass as soon as the Pataling tunnel is completed.

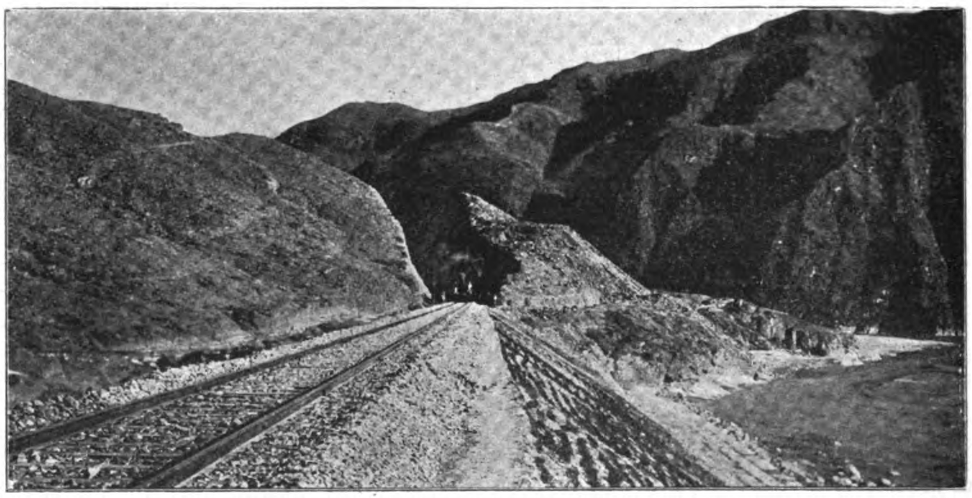
"It is not necessary to weary the reader with a lengthened account of the third and fourth divisions, on the former of which work has just commenced. Suffice it to say that the third division is 38 miles long, extending from Chatao to Kimingyih, and requires the construction of 17 bridges and 32 drains, aggregating 2662 linear feet of openings. The principal engineering feature will be the bridge at Huilaihsien, which will consist of ten 100 feet deck spans. The fourth and last division begins at Kimingyih and ends at Kalgan, again a distance of 38 miles. The engineering difficulties in this division rival those of the Nankow Pass. At Hsiangshuipo, 165 chains



KALGAN RAILWAY.—TUNNEL ENTRANCE



KALGAN RAILWAY.—THE TUNNEL UNDER THE GREAT WALL



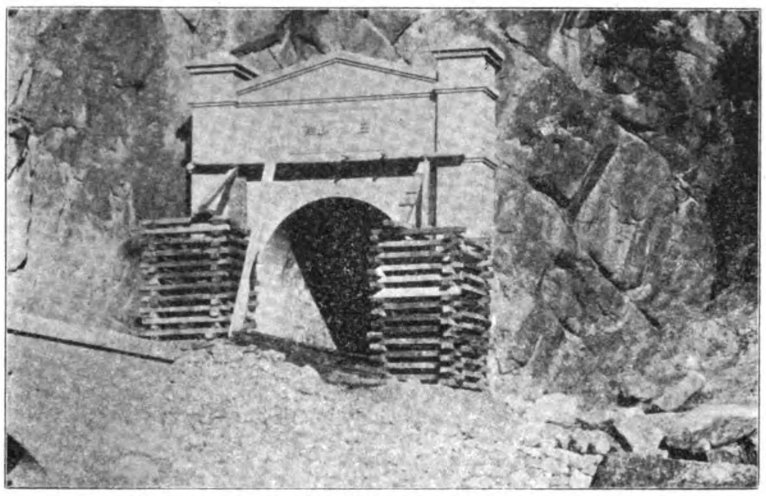
PEKING-KALGAN RAILWAY.—CUT AND FILL

[*i.e.* 16,500 feet] of granite and sandstone will have to be cut through, along the edge of the steep bank of the Yangho, which is the upper course of the Yungtingho, the cut varying from ten feet to eighty-five feet deep. The openings amount to 2075 linear feet, consisting of 21 bridges and 130 drains.

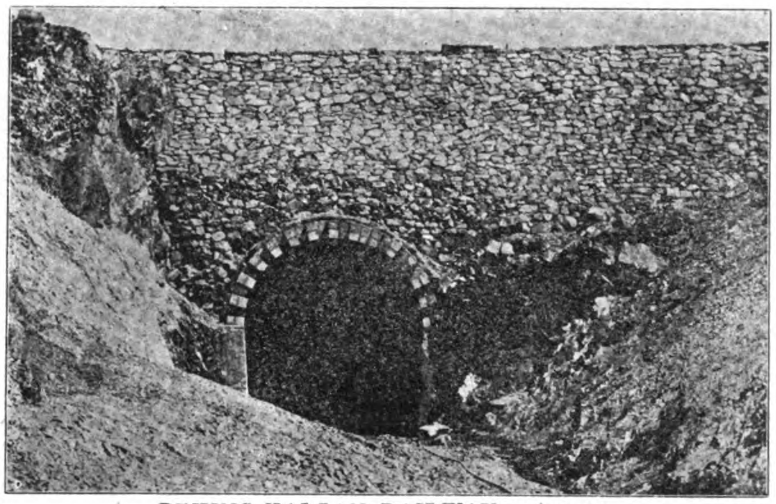
"At Kimingyih, the railway is operating a coal mine bought from the country people. At present the attention of the mining engineer in charge (a Chinese who qualified for his profession in both England and America) is directed to the introduction of the latest Westernimprovements and the driving of new shafts and drifts. Machinery, for both winding and drilling, has been transported at tremendous labor to the spot and installed, and it is expected that within a year coal will be forthcoming.

"The branch line to Mentoukou, a distance of 15 miles, is also under construction. The economy of the line is again demonstrated by the fact that the embankment amounting to 100,000 fongs was contracted for about 14 cents per fong. The branch line is to connect the well-known coal-fields with the capital. There is one bridge of some importance, namely, the one across the Hunho, which consists of eight 100 feet spans. The railway hopes to do a thriving business on this short line, running as many as forty 20 ton cars every day to convey the freight, which will consist of hard coal, lime and broken stones for road building.

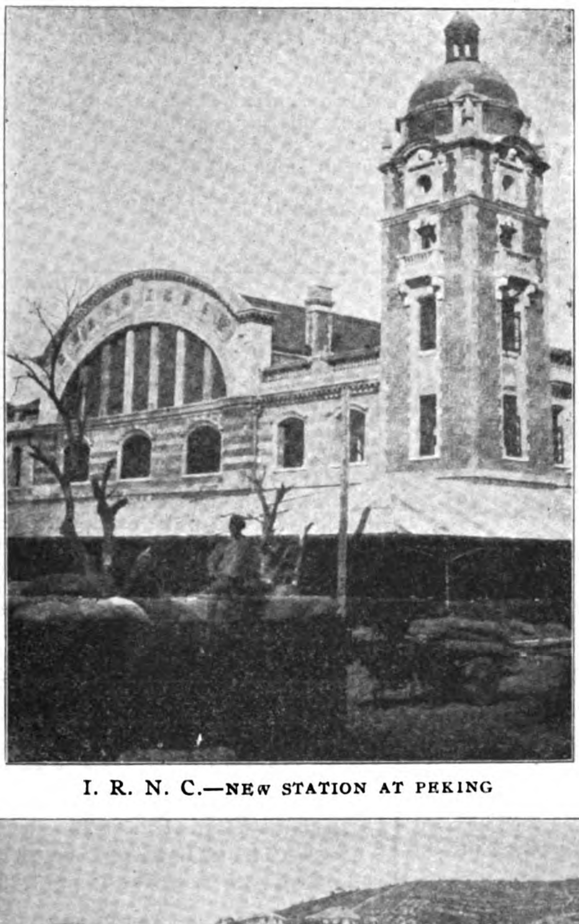
PEKING-KALGAN RAILWAY.—HIGHEST POINT NANKOW PASS, PEKING



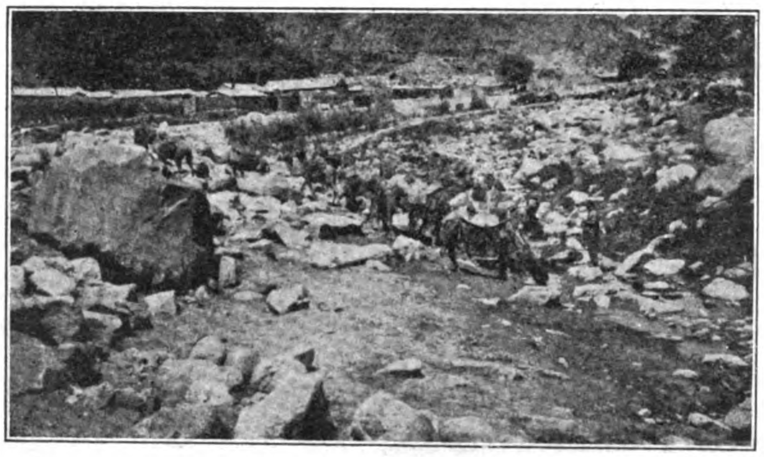
PEKING-KALGAN RAILWAY.—TUNNEL ENTRANCE



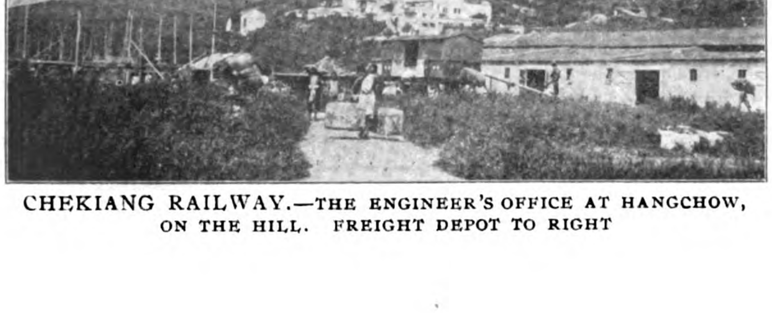
PEKING-KALGAN RAILWAY.—TUNNEL



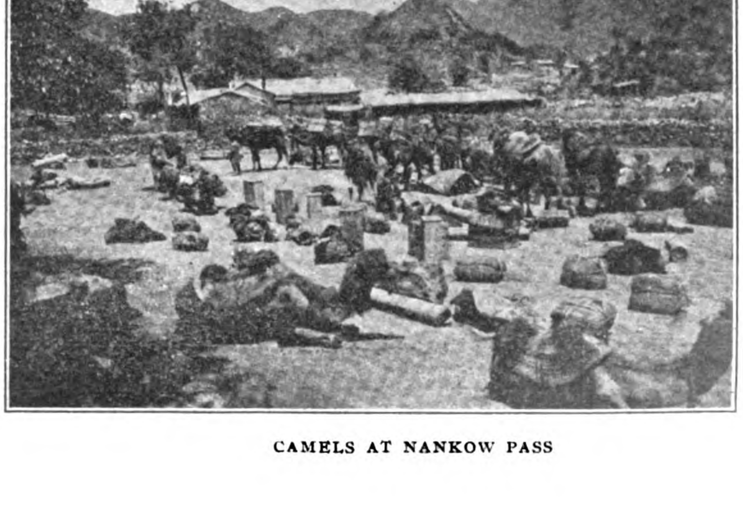
I. R. N. C.—NEW STATION AT PEKING



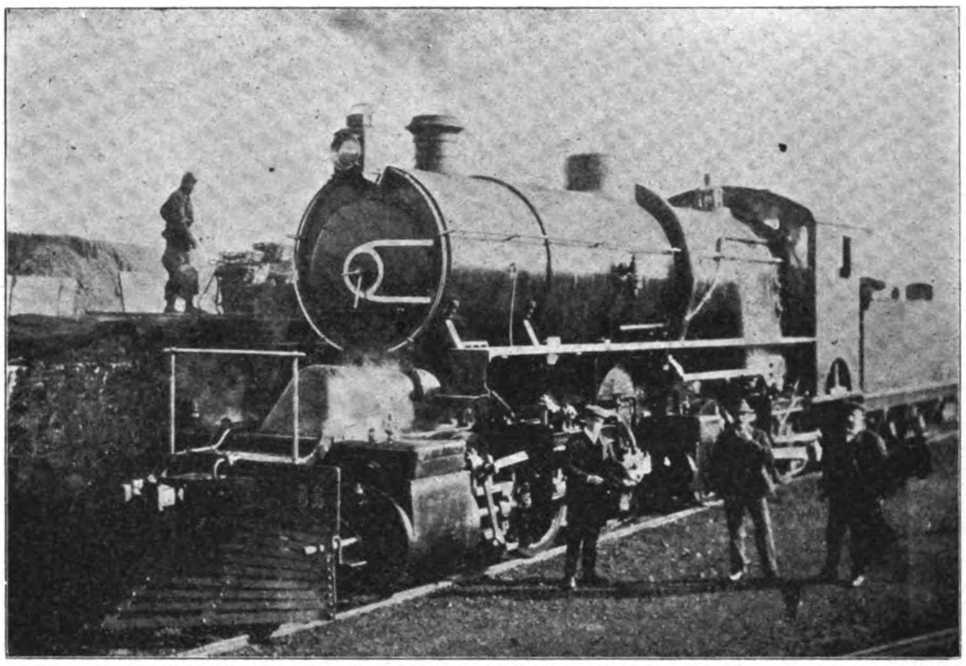
PEKING-KALGAN RAILWAY.—TUNNEL OPENINGS



CHEKIANG RAILWAY.—THE ENGINEER'S OFFICE AT HANGCHOW, ON THE HILL. FREIGHT DEPOT TO RIGHT



CAMELS AT NANKOW PASS



PEKING-KALGAN RAILWAY.—MALLET TYPE LOCOMOTIVE FROM NORTH BRITISH LOCOMOTIVE COMPANY

"The whole line to Kalgan will be completed in 1910 or even earlier, and it is the intention of the Chief Engineer to construct the termina at Kalgan on a grand scale.

"In concluding this brief and inadequate description of the Peking-Kalgan Railway, let me call the attention of the reader to the principal features of the line, features which render it conspicuous and distinct from the other lines in China. In the first place, there are no foreigners employed. This in itself should be and is a matter of national pride, but were our engineers unable to fulfill the demands of their profession, it would perhaps be a better arrangement to utilize foreign technical skill. In the present instance, however, there can be no question whatever that all the work of construction is carried out in good engineer like manner. The materials used are of the best quality, while the structures bear nothing of the temporary character about them. To one who has travelled on the line, it is evident that the buildings too are of first class masonry.

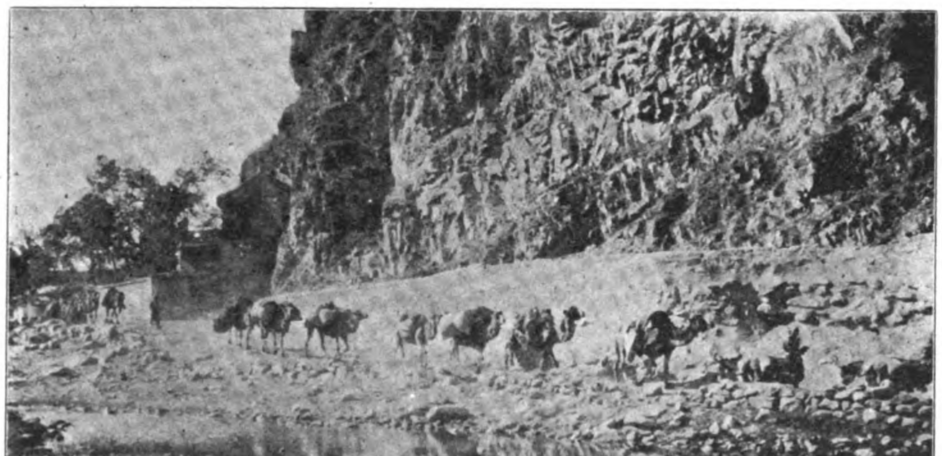
"The second point is the rapidity of the construction. Within the short period of nine months, and it must be remembered that in the north of China three months in winter are frozen and no concreting can be done during those months, the construction train reached Nankow, a distance of 32 miles.

"In the construction of a railway, economy, which must not be confounded with cheapness, must always be kept in view. All railways which have been built and are being built in China must be paid for by our people, and our people are poor. A railway line is not a club house or a private mansion, upon which the owner or owners may expend millions merely for the gratification of their sense of beauty or for the exhibition of their degree of wealth, but is a commercial investment. The amount of capital sunk in it must be commensurate to its power of paying dividends, and in the case of Chinese railways the redemption of the bonds must not for a moment be forgotten. Economy on the Peking-Kalgan Railway has been reduced almost to a science. There is no temptation to spend money recklessly, as no five per cent. commission on every tael spent can enrich the coffers of any corporation. There is no temptation to spend recklessly so as to necessitate the floating of another 'loan,' in which the Chinese Government receives Tls. 93, and the bondholders pay to the floaters Tls. 116. There are no engineers who must have foreign style residences, cement tennis courts, ice-making machines, palatial house-boats, and princely salaries before beginning work. There are no interpreters to browbeat the contractors, to make trouble with the local officials, and to make a pile in little or no time. All contractors deal with the engineers directly, and no squeeze system exists. The figures already given for the prices of materials explain in a large part why a railway built under our own supervision and by our own engineers is so very much more economical.

"Another very important advantage gained is the peaceful condition of coolies during construction, due to the absence of misunderstanding between engineers, the coolies, and the country people. No disturbance of any kind, still less of any rioting, has ever happened, and the work has proceeded so smoothly and quietly that the local officials are never called upon to suppress disorders or punish offenders. There can be no unpleasantness arising through the interference of foreign consuls and the referring of insignificant incidents to the Ministers in Peking. One and all understand that the railway is a Chinese railway, that our own money is being spent, that the coolies are our own people, though they are coolies, that our officials are officials appointed by the Emperor, and the result is the work proceeds without a hitch of any kind.

"One should think that with Government patronage and official supervision, there could be no strict honesty, that graft, more or less, must penetrate the transactions. Wonderful to say, on this line nepotism is unknown all employees are rated according to their qualifications, no matter whether a man comes with a recommendation from a Prince or no, and all contracts are by competitive tenders. Indeed, spies, employed by interested or unfriendly parties, are so keenly on the watch that nothing crooked could escape their eyes and be not immediately exposed, were those in charge inclined to be crooked.

"And lastly, student engineers are much encouraged for their work, and receive considerate treatment from their teachers. Steady and conscientious application of their knowledge (nearly all of them have received theoretical training in the engineering department of Tientsin University or elsewhere) ensures rapid promotions and good salaries. Their future is assured, for the demand of Chinese engineers is far above the supply."



PEKING-KALGAN RAILWAY.—CAMELS BRINGING IN RAILWAY SUPPLIES

FOR SALE

Patent Slip supplied to H. H. The Rajah of Sarawak by Messrs. Day Summers & Co., Ltd., of the Northam Ironworks, Southampton, England, for sale f.o.b. Kuching, Sarawak. The Slipway has never been erected and was designed to take a vessel of a total displacement of 570 tons, 44′ 6″ over paddle boxes, 175 ft. long drawing, 1′ 1½″. All complete including winding gear and rails, except for the boiler and can be seen lying here. Full particulars will be supplied to any bona fide enquirer on application being made to the undersigned.—H. F. Carew-Gibson, ***Commissioner of Public Works aud Surveys.***

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TIENTSIN-PUKOW RAILWAY

(Southern Section)

Although work on the Northern Section of this Railway has been progressing at a favorable rate, the same can hardly be said of the Southern Section. Various reasons have been advanced from time to time in explanation by both British and Chinese officials, and the idea allowed to gain ground that the work has been retarded owing to the lack of harmonious relations between the Managing Director, Taotai K. S. Low, and the British Chief Engineer, Mr. T. W. Tuckey, with the burden of censure on the former official. The representatives of the British and Chinese Corporation at Peking, and the *London Times* criticized the state of affairs, reflecting on the capacity of the Chinese Director, and comment in Shanghai and the treaty ports naturally followed this lead. It is entirely natural and perhaps justifiable for some to shift all responsibility for delays and friction on to the shoulders of the Chinese official, as the world is generally ready to accept such a view, owing to the natural leaning of the race towards obstruction and procrastination. But in this particular instance it is safe to state that the reverse is true, and such delays and discords which have arisen, are traceable directly to the fact that the foreigner has attempted to overstep the terms of the Loan Agreement, and the Chinese managing director has assumed an inflexible attitude in defending the interests confided to his charge. For once China's interests are entrusted to an official peculiarly equipped to act intelligently and safeguard her rights. In Taotai K. S. Low, China has selected the best man in the Empire for the post of managing director of a railway. Educated in America in the early eighties, he graduated as a civil engineer from the Troy Polytechnic, and since returning to his native land his services have been in constant demand for railway work. He was one of the party who made the original surveys for the Pekin-Hankow and the Canton-Hankow Railways; he assisted in building the Pinghsian Colliery Road, was railway expert to Sheng Kungpao, surveyed the Kirin Railway, and was first chief engineer to the Chekiang Railway Co., where, had his advice been acted on, it would have saved the directorate much adverse criticism. With Taotai Jeme Tien yu, the builder of the Peking-Kalgan Road, Taotai Low shares the honor of being the best native engineer in China. With an enviable record for probity and capacity it was clear at the outset that such an official would hew close to the terms of the Agreement, and insist on its being carried out to the letter. Although the British and Chinese Corporation had undoubtedly constructed a thoroughly first class road in every respect from Shanghai to Nanking, the Chinese hold to the opinion that conditions did not warrant such a heavy expenditure, and in the future, instead of permitting the foreign engineer absolute control of purchases, the tendency towards extravagance would be checked by the control being placed under the Chinese managing director. It is not my purpose to enter into any discussion as to the merits of the above contention, which is simply stated as a fact, which actuated the Imperial Government, in stipulating that financial control would be in their own hands in the construction of the Tientsin-Puokw Road.

The lack of harmony or friction between the high officials of the road, advanced by British papers as an excuse for the delay, is largely attributable to the failure of the British Engineer to accept the terms of the Loan Agreement, as interpreted by the managing director. The authorities on the Northern Section had arrived at an amicable adjustment of their relations to each other, and the German chief engineer was recognized as the supreme authority, not only in the technical but accounting departments. Mr. Dorpmuller was the acknowledged head of all foreign engineers, accountants and secretaries and their contracts with the railway authorities recognized him on an equal footing with the managing director.

Herein the administration of the Northern Section practically nullified the terms of the Loan Agreement which China took such pains to conclude, not only for the protection of her own interests, but those of the other side as well. According to Article 17 of this agreement, although the services of the chief engineer are engaged for the supervision of construction, he is under the orders of the managing director, and has to carry out the wishes of the latter as to the general plan of the road. The managing director under the conditions of the Agreement is the superior and his special functions are the administration of the funds and supervision of all purely Chinese matters. If this control is shared by the chief engineer, it relegates the director to a back seat and opens the way for graft in many forms or at the least to extravagance in construction, which the Chinese government was specially desirous to obviate. As the sole responsibility for the funds is charged to the director, any participation by the engineer in their control, while disclaiming participation in responsibility, would react seriously on his official colleague, and any attempt to share such control would necessarily be resented by an official jealous of his record and reputation.

The scandals attached to the Northern Section of the road are too recent an occurrence for me to enlarge on here, but it is well to bear them in mind in arriving at a correct estimate of the situation on the Southern end.

Under the terms of the loan agreement the powers of the managing director are derived from the director general and he is held solely responsible for the funds and the accounting. As it was impossible for him to do this work himself thes ervices of a competent foreigner was sought and at the same time the post of private secretary to the managing director was also to be filled. The latter requested the chief engineer to use his good offices and assist him in securing these men and through his influence the present accountant was brought out from India and the chief secretary from England. And from this point dates the friction between the officials. The chief engineer insisted that these men—the accountant who was to supervise the accounts for the Managing Director, and the one who was to act as his chief secretary—must sign the agreement recognizing him as equal in authority in their departments as the managing director. Taotai Low refused to accept such interference in his department and to this difference of opinion is due all subsequent friction. The attitude of the chief engineer, in plainer words, would reduce his superior to the position of an inferior and cancel his authority in his own department. Mr. Tuckey's insistance on this point naturally created an issue which had to be submitted to Peking for adjustment, and under the terms of the Loan Agreement all such questions were to be decided by the director general. The managing director transmitted his papers in due form to the recognized authority,but the chief engineer took his case over the head of the director general to the British Minister at Peking and to the representative of the British and Chinese Corporation. This breach of official etiquette, reflecting on the fairness of the director general, only helped to intensify the ill feeling on both sides. The final decision of the authorities at Peking, fully supported Taotai Low, and the attempts to shoulder on him the responsibility for lack of harmony and delay in construction is not justified by the facts, and in all fairness to a capable official such reports should be corrected. Taotai Low has conscientiously endeavored to administer his office in strict compliance with the terms of the Agreement, and while it cannot be urged that there was any ulterior motives on the part of the engineer in forcing the issue, other than a natural desire for power, his action if successful would have effectively nullified the Agreement and opened the way towards "graft" and extravagance. In view of the scandals attached to the northern section of the road where the chief engineer shared the control of the accounts with the Director, Taotai Low's stand is worthy of the highest commendation from all parties as it effectively precludes a repetition of the graft charges at Tientsin and preserves the good name of the Chinese government and the British and Chinese Corporation from any taint of corruption, however ill founded. If scandals arise in the future there is only one responsible party and the British interests may well feel grateful to the Chinese director who has effectively insured them from any suspicion of graft by assuming all responsibility and refusing to acknowledge the pretensions of the engineer to joint control of the accounts. The road when completed may not be up to the highest British standards as typified in China by the Shanghai-Nanking line, but it will have the merit of satisfying the Chinese idea of economy which may mean more for the success of British railway principles than an abnormal temporary profit.

As far as I am able to gather from all reliable sources, the persistent criticisms directed against Taotai Low arise from his uncompromising attitude in rigidly enforcing the stipulations of the Loan Agreement without regard for favored parties, thus fully protecting himself from any taint or suspicion of scandal. His most bitter critics, those who have been unsuccessful in securing contracts, all concede his probity and honesty. The full text of Article 18 of the T. P. R. Loan Agreement reads as follows:

"For the Northern and Southern Sections of the Railway, respectively, the Deutsch-Asiatische Bank and the Chinese Central Railways Limited will act as agents of the Railway Administration during construction for the purchase of all materials, plant and goods required to be imported from abroad. For all important purchases of such materials tenders shall be called for by the managing director: in the case of all tenders, indents and orders for the importation of goods and materials from abroad, the said agents shall purchase the materials required on the terms most advantageous to the railway and shall charge the original net cost of the same plus a commission of five (5) per cent. It is understood that no orders for materials shall be executed or any expenditure incurred without due authorization by the managing director.

"In return for payment of commission as above stated, the Deutsch-Asiatische Bank and Chinese Central Railways Limited as agents within their respective sections shall be prepared to superintend the purchase of all foreign materials required for the construction and equipment of the railway, which shall be purchased in the open market at the lowest rate obtainable, it being understood that all such materials shall be of good and satisfactory quality, and that the railway administration shall have the right to reject on arrival in China materials which do not come up to specifications. At equal rates and qualities goods of German and British manufacture shall be given preference over other goods of foreign origin for the Northern and Southern sections respectively. The railway administration reserves the right, while paying the above stipulated commission to the said agents in respect of all purchases of foreign materials, to avail itself of the services of other agents in China or abroad should it see fit to do so.

"Original invoices and inspectors' certificates are to be submitted to the Managing Director; and all purchases made by the agents on behalf of the Railway shall be supported by manufacturers' original invoices and inspectors' certificates.

"No commission shall be paid to the agents except as above provided; but it is understood that the railway administration shall provide out of railway funds for the remuneration of consulting engineers whenever their services are engaged.

"With a view to encouragement of Chinese industries, preference will be given at equal

prices and qualities, over British, German or other foreign goods to Chinese materials and goods manufactured in China. No commission will be paid on purchases of such materials and goods.

"It is understood and agreed that after the construction of the line is completed the Deutsch Asiatische Bank and the Chinese Central Railway Limited, within their respective sections, will be given the preference for such business, during the currency of the Loan, for the supply of foreign materials as the railway administration may require, on terms to be hereafter mutually agreed upon."

The above terms concede to the Chinese Central Railways, Ltd., or their official agents, a commission of 5% on all goods purchased or imported from abroad and all accounts must be certified to by original manufacturers invoices and inspectors' certificates. This provision was made to protect the railway from the excessive charges of goods purchased in the local market to which the agents' 5% commission would also be added. A slight misunderstanding as to the correct application of these provisions to an indent marked urgent, and which were purchased in the local market, arose between the managing director and the agents of the Chinese Central Railways which for a time also tended to foster the bitter feeling, but in justice to Taotai Low it is only fair to state that as soon as the matter was brought to the attention of the head of the house, he recognized the untenable position into which his firm had unwittingly been placed by an over zealous junior assistant, and promptly made all proper amends for the error.

"*At equal rates and qualities* goods of German and British manufacture shall be given preference over other goods of foreign origin for the Northern and Southern Sections respectively"...... "With a view to encouragement of Chinese industries, preference will be given at equal prices and qualities to Chinese materials and goods manufactured in China. No commission will be paid on purchases of such materials and goods."

The above stipulations of the Loan Agreement allow room for considerable scope of judgment in ordering material. At equal rates and qualities goods of British and German manufacture shall be given preference. If goods of other foreign make equal in quality and lower in cost are offered it permits of their acceptance and purchase, and in the interpretation of these words considerable ill feeling has been engendered. On the Northern end, under Teutonic influence, there has never been any question as to what goods were of the highest quality. Even the nails proceed from Germany. Cars, locomotives, rails, bridges and all other supplies were secured from Germany. With a German chief engineer, participating in the control of the accounts and enjoying the most harmonious relations with the Managing Director, any goods of German make were superior to the best foreign makes and no other nation had a look in at the contracts. It is alleged that this complete harmony in the working of the Northern Section is responsible for the fact that in some instances the goods were on the way to China from Germany at the time tenders were publicly invited in Tientsin. It is natural that a German engineer working in complete accord with the managing director should stipulate the purchase of German materials as the best for the road, and although other foreign goods might be cheaper, he would insist that the quality was very inferior therefore could not be considered and the managing director, guided by his superior technical knowledge, would so award the contracts. But the managing director of the Northern Section has lost his job and dragged down his superior director-general with him, giving harmonious relations a black eye in China. Germany has been thus placed in an awkward position. In the vernacular of the West, she is "buffaloed." To admit collusion between the German chief engineer and the disgraced managing director is of course impossible or she must concede the fact that the much vaunted Pukow terms fail to insure honesty when applied to German loans, and to admit this she simply strengthens the argument of British financiers that Pukow terms fall short of safeguarding the interests of the investor.

But on the Southern Section, where harmonious relations have not obtained, Pukow terms are working out successfully to the credit of the Chinese government and the salvation of British endeavors. The situation is almost identical. The British chief engineer is patriotic to the core. It is quite impossible for the best foreign equipment to equal in quality the worst British make, therefore British goods are always recommended for purchase even at a higher rate. But the managing director who holds the purse strings is also patriotic and loyal to his charge, and, in addition, is a highly qualified railway engineer himself. It is difficult to accept the dictum of the chief engineer that British goods are the best and should be ordered when Continental and American manufacturers of world wide reputation bidding on the same tender, under identical specifications, are greatly lower in price. So it happens that the lack of harmonious relations, while reducing the total aggregate of British sales to the railway, effects economy for the Chinese government who is, after all, paying the bills. While conceding in a friendly spirit the bulk of the orders to British firms, some business has also been placed with the lower tenderers of other countries. Of the ten locomotives, eight were ordered from Great Britain and two from America. Of the 200 cars purchased, 50 were ordered from Belgium. In the north, the rails were purchased in Germany despite the express stipulation about preference to China's industries. In the South, the rail order went to the Hanyang Iron & Steel Works, and a considerable portion of the cement was secured from the Chee Hsin Company. It may be that the spirit of the Loan Agreement intended that German and British manufacturers should receive all the orders and that the provisions as published were only intended as "face pidgen" but Taotai Low has stuck to the letter of the terms and awarded the contracts to the best advantage of his country.

With a German engineer on the North insisting that German goods are the best in the world and a British engineer on the south holding out the same for British goods, it takes considerable moral courage for a director to decide equitably on any tender. In justice, however, to those who have financed the loan, it is only fair that their nationals should receive the major benefits arising from its expenditure and the attitude of the British chief engineer is well taken, for if the lowest tenders are always accepted irrespective of nationality, German material would dominate the southern section as well as the northern, and this despite the fact that British tenderers received no consideration from their rivals. It is a serious matter now a days for any one engineer to arrogate to himself the power to pass judgment on the best types of engines or rolling stock or to maintain the point that the worst British make is superior to the best American or Continental goods, or vice versa. It generally lands him in hot water and keeps him busy dodging attacks. Aside from the delay natural to a serious disagreement between the high officials of the road, the progress of the Southern Section has been hampered by other causes. The survey of the line and working maps were not completed until the early part of this summer and up to date an estimate for the cost of construction has not been submitted by the Engineer which impossibilitates the making out of a proper budget. In fact the many reasons which have appeared in the press throwing the onus of all the trouble on the Chinese managing director are grossly unfair in the light of precise information, and the chief engineer must assume his share of the burden of criticism. British interests should feel thankful that they were not placed in an undesirable position through the slack or supine methods of the Chinese official. While temporary profits may be curtailed and the road fall short of accepted British standards, the principle of economy so acceptable to China will be established and undoubtedly lead to larger returns and more substantial business in the future.

Work on the road is now progressing at a favorable rate and much of the friction is eliminated. With the completion of the survey and working maps, the road has been divided into sections, divisional engineers appointed and earthwork started at various points. About 50 miles of road is now in hand and material is being delivered out on the road as fast as possible. At the Yangtse deep water terminus, wharves and warehouses with a large crane for handling heavy materials have been erected, and ocean steamers discharge alongside. Shipments of sleepers, cement, rails, cars, caissons, portable engines, etc., have already arrived and are being sent up the line by junks. About 2½ miles of temporary track has been laid connecting the river terminus with Pukow where the shops and headquarters of the southern section will be located. At this point a fair rate of progress is being made. The yard is all laid out, staff quarters erected, and locomotive, car and machine shops are about 60 per cent. completed. One Baldwin tank work locomotive is in operation in connection with the construction cars on the Pukow section. It may be stated that work on the first section is well in hand and progressing at a reasonable rate. The chief engineer in his speech on the occasion of the official ceremonies attending the formal commencement of the work on January 2nd last, compromised to have the line completed in 2½ years. As the materials are now all ordered and on the way, the work is reduced to a matter of earthwork and bridges. There are no steep grades, tunnels or unusual cuts, but the low lying country calls for many long stretches of fill. There are a total of 198 openings or bridges on the line. In the first district there are 73 bridges, one 200 ft. span and 6.50 ft. being the longest. There are three other 100 ft. openings, the balance being mainly 50 and 30 feet. The most important bridge work is in the second district, between Hsuao Chi Ho and Hsi Tsu Fu stations. In the 110th mile the line passes over the Haai Ho on 8-200 foot spans, the most important bridge on the road, and in another few miles the Fet Ho is crossed on 62-30 ft. spans; in the 127th mile the Hsieh Ho is reached and crossed by 8-50 ft. spans, and in the 134th mile the Huee Ho by 1-200 ft. and 14-30 ft. spans. So the heaviest bridge work is concentrated in a district of 24 miles of road. In the third district, from Nan Hsu Chao to the Li Kwo terminus there are 94 openings the largest being one of 1-100 ft. and 10-30 ft. spans and another of 30-30 ft. spans.

The total length of the completed road according to finished surveys will be 233½ miles, and the line from the Yangtsze Terminus north will include the following stations:

STATIONS AND PASSING LOOPS

NAME.	MILEAGE.
Yangtze Terminus	0
Pukow Shops Yard	..
Wa Cha Ying	7¾
Tung Kwo	14¼
Wu I	20¼
Chu Chao	30¾
Sha Ho Chi	39
Chang Pa Ling	45¾
San Chieh	53
Kuan Tien	60¾
Future passing Loop	64¾
Ming Kwong	70¾
Future passing Loop	74¼
Hsiso Chi Ho	81¼
Lin Huai Kwan	93⅞
Hsi Li Ying	102
Pong Pu	108½
Tsao Lao Chi	117
Hsin Chao	126¼
Kuchon	135¼
Jen Chiao	144¼
Hsi Tsu Pu	154¼
Nan Hsu Chao	164¼
Fu Li Chi	173¼
Cha Kur	183¼
Tsao Cheng	192
San Pa	201¼
Hsu Chao Fu	211
Mow Chwang	213¼
Liu Chon	224¼
Li Kwo	233½

The railway has been remarkably fortunate in securing very low prices for their bridge work as will be seen from the comparative list of tenders. A price of £9-17-9 per ton for girders

delivered in China is tangible evidence of the success of the present arrangement and of the favorable prices secured through the agents of the Railway syndicate. This contract was therefore awarded strictly on the basis of the lowest tender.

A glance through the detailed tenders for locomotives, cars, rails, and steel girders, will give a fair idea of the keen international competition for Chinese railway orders in which all the leading manufacturers of the world participated. The task of passing judgment on these varied tenders would prove difficult to experienced engineers in any country. Any final award could not escape comment and charges of favoritism and the fact that Taotai Low has so far retained the good opinion of all tenderers, speaks volumes for his tact and judgment.

In addition to being a target for foreign criticism the director having charge of all purely Chinese matters has had no easy time with his own countrymen desiring to get rich quick from the railway funds. A purely native company, composed largely of the gentry and a few mandarins, relying on their intimacy with the Director, bid for and secured a contract for a section of earthwork in Anhui province. Fine offices were engaged and the president and officers flitted around in carriages as befitted their station in life. The contract naturally was a losing one and they finally had to let go with the result that the Managing Director has had a difficult time in convincing his countrymen of his inability to make up their losses out of the railway funds. He is therefore unpopular and as some of the losers are quite influential, they are out after his official scalp. It is alleged that a contractor had tendered on the earthwork at Pukow for 30 cents per fang, but the foreign engineer proposed at the last minute that he should receive an increase of 25 cents more. This caused such astonishment amongst the other bidders that a scandal was only averted by giving the work to another.

COMPARATIVE LIST OF TENDERS FOR 100 LOW SIDED, 100 HIGH SIDED AND 50 COVERED WAGONS FOR THE TIENTSIN-PUKOW RAILWAY (SOUTHERN SECTION).—INDENT NO. 50.

Contract awarded:—

100 high sided cars to Messrs. Hurst, Nelson & Co., through Messrs. J. Bissett & Co.

50 covered wagons to the Metropolitan Amalgamated Railway Carriage & Wagon Co., Ltd., through Messrs. Jardine, Matheson & Co., Ltd.

50 low sided cars to Ateliers Métallurgiques of Belgium, through the China General Engineering Co.; 50 cars to be awarded.

1. Anderson Meyer & Co., Shanghai.
Basteneir Works La Lauviera, Belgium, £220: £ 252: £195.
Remarks: c. i. f. Pukow.

2. Brighten Malcolm & Co., Shanghai.
Luds Forge & Co., England, £366-15: £342-7: £421.
Luds Forge & Co., England, £339-15: £315-7: £408.
Luds Forge & Co., England, £346-15: £322-7.
Remarks: If wheels and axles by continental makers reduce by £27-1-0 each for high and low sided and £13-1-0 for covered.

3. China General Engineering Co., Shanghai.
Les Ateliers Métallurgiques, £256-5-7: £242-5-5: £138-11-2.
Remarks: c. i. f. Pukow.

4. China General Engineering Co., Shanghai.
Les Ateliers Métallurgiques, £206-18-4: £184-13-10: £138-11-2.
Remarks: Alternative wagons with built up under frames, c. i. f. Pukow.

5. Samuel McGregor & Co., Shanghai.
L. P. Winby & Co., £287-13-0: £268-16-0: £208-1-6.
Remarks: c. i. f. Pukow, shipment by Dec. 09.

6. Samuel McGregor & Co., Shanghai.
Not specified. £250-16-0: £199-1-6.
Remarks: Continental wheels and axles reduced low sided by £18 each and covered by £91-1-0 each.

7. Jardine Matheson & Co., Shanghai.
Luds Forge Co., £351-18-0: £334-11-0.
Remarks: Payment 15 days after delivery. Delivery Pukow.
Pressed steel under frames and bogies laminated side bearing springs. Time as called for if order placed early July.
Luds Forge Co., £331-10-0: £316-4-0.
Remarks: Similar to first except bogies with coil springs.
McKerrow & Co., £335-1-6: £326-8-0.
Remarks: Sheffield Twin borrow Type, built up frames, diamond bogies.
Nicaise Delcuve, Bel., £266-19-9: £249-5-0.
Remarks: Pressed steel under frames and bogies with laminated bearing springs.
Nicaise Delcuve, Bel., £254-4-9: £236-11-0.
Remarks: Pressed up frames, Fox pressed steel bogies fitted with coil springs.
Nicaise Delcuve, Bel., £265-4-0: £247-0-0.
Remarks: Built up frames, pressed steel bogies with laminated springs.
Nicaise Delcuve, Bel., £252-4-0: £234-12-0.
Remarks: Built up frames, Fox pressed steel bogies.
Brush Electric Eng. Co., £313-5-0: £294-12-6: £170-9-0.
Remarks: Pressed steel under frames and bogies, laminated bearing springs. For cover wagons English wheels, axles, workmanship, but continental material.
Brush Electric Eng. Co., £310-4-0: £291-12-0.
Remarks: For cover wagons English wheels, axles, workmanship, coil bearing springs.
Brush Electric Eng. Co., £290-18-0: £272-3-0.
Remarks: Built up steel frames, pressed steel bogies, laminated bearing springs.
Brush Electric Eng., £287-13-0: £269-0-0.
Remarks: Built up steel frames, pressed steel bogies, coil springs.
Brush Electric Engineering Co., £283-11-0: £264-19-0.
Remarks: Built up steel frames, pressed steel bogies, laminated bearing springs, flat under frames and no trussed rods.
Brush Electric Engineering Co., £280-10-0: £261-18-0.
Remarks: Similar to previous one but fitted with coil bearing springs.
Metropolitan Amalgamated Ry Carriage & Wagon Co., £246-16-0: £318-5-0: £188-14-0.
Metropolitan Amalgamated Ry Carriage & Wagon Co., £328-9-0: £299-17-6.
Remarks: Pressed steel bogies, coil springs, pressed steel under frames.
Metropolitan Amalgamated Ry Carriage & Wagon Co., £285-12-0: £260-2-0.
Remarks: Channel steel under frames, diamond bogies and coil springs.
Middleton Car Co., £260-7-0: £235-3-0.
Remarks: To their specification refer drawing 1523-A and specification 3734-A attached to tender. Wharf to be free for discharge.
Middleton Car Co., £188-12-0.
Remarks: To their specification No. 3747-C, drawing 1524-A.
Attached with tender.

8. Melchers & Co., Shanghai.
Hanover Wagon Factory, £486.
Nerdingun Wagon Factory, £426-14-0.
Gothaer Wagon Factory, £287-0-2.
Remarks: Delivery in Jan. 1910, at Pukow, at tenderers' risk and cost if order given in June.

9. Mitsui Bussan Kaisha, Shanghai.
American Car Foundry Co., £276-11-3: £262-7-2: £182-0-0.
Remarks: Wheels and axles approved English makers.
Dominion Car Foundry Co., £252-1-3: £237-17-2.
Remarks: American type arch bar track for bogie.
Ralston Steel Car Co., £257-11-0: £242-2-11.
Remarks: American type of cast iron chilled wheels 33" dia. for bogie, c. i. f. Pukow. Delivery Jan. 1910.

10. Mitsui Bussan Kaisha, Shanghai.
Midland Ry Carriage & Wagon Co., £321-15-0: £302-7-0: £195-8-0.—£316-10-0: £292-2-0
Remarks: Alternate design for door as per maker's drawings 1004-B reduce £5-5-0.
Midland Ry Carriage & Wagon Co., £318-12-0: £300-12-0.
Remarks: Alternate design for door as per maker's drawings 100413 reduce £3-3-0 for highsided and £1-15-0 for lowsided.

11. Telge & Schroeter, Shanghai.
Blake Boiler Wagon Engineering Co., £395: £371-10-0: £260.
Remarks: To maker's specification, 450 pair wheels and axles 9747.
T. Baker Co. Makers. 100 pair wheels and axles 2227 T. Baker Co. maker.
W. Raushaw & Co., £318-12-7 1-5: £296-15-0: £205-3-7 1-5.
W. Raushaw & Co., £307-18-7 1-5: £286-1-0.
Remarks: Alternate diamond frame bogie.
W. Raushaw & Co., £296-19-9 3-5: £292-13-1 1-5 £181-19-7 1-5.
Remarks: Plate frame bogie.

12. Shewan Tomes & Co., Shanghai.
Hearst Welson & Co., £323: £303-6-0: £218-5-0.
Remarks: Payment 15 days after delivery. Time as called for if order placed within 10 days.

13. Mitsui Bussan Kaisha, Shanghai.
Société Anonyme des Ateliers Camille Bastinier, £280-19-0: £263-9-0: £195-16-7.
Remarks: Axles and wheels by approved English makers.
Société Anonyme des Ateliers Camille Bostonies, £260-19-0: £243-9-0: £185-16-7.
Remarks: Alternative with axles and wheels by continental makers.

14. Anderson Meyer & Co., Shanghai.
Am. Car Foundry & Co., £275: £260: £182.
Remarks: As per maker's specification, c. i. f. Pukow. Payment on delivery of cars.
Am. Car Foundry Co., £234: £218.
Remarks: Am. type arch bar track, Am. type cast iron chilled wheels with continental wheels, axles, bearings prings, brake, Tournal bearing, etc.

15. Westphal King & Ramsay, Shanghai.
W. R. Runshaw, £284: £264-13-0: £167-18-0
Remarks: Plate frame bogie.
£276-10-0: £259-15-0.
Remarks: Diamond frame bogie.

16. China Japan Trading Co., Shanghai.
Ateliers Camille Bastinier, £245-3-6: £260-8-0: £194-5-0.
Remarks: Continental wheels and axles.
Ateliers Camille Bastinier, £266-3-6: £281-8-0: £102-7-6.
Remarks: English wheels and axles.
Head Wrightson & Co., £339-8-3: £319-4-0: £201-12-0.
Remarks: Wheels and axles by approved makers. Delivery to be taken as fast as steamer can discharge.

17. During Wibel & Co., Shanghai.
British Electric Engineering Co., £303-2-2 2-5: £284-2-9 3-5: not quoted.
Remarks: Payment ⅓ with order, balance on delivery Pukow, whole lot F. O. B. any English port, if order placed in June, in Nov. Tubular Brake Beam substituted.

18. Gunniss Riddle, Shanghai.
Société Anonyme La Construction, £436: £414: £252.
Remarks: Underframes, bodies by Société Anonyme La Construction, and wheels and axles by approved British makers 1½% discount to each payment vs. B-L, Insurance Policies, etc.

19. Westphal King & Ramsay, Shanghai.
B. Electric Engineering Co., £308-18-7 1-5: £289-12-0.
Remarks: Payments ⅓ with order, balance on delivery at Pukow—Tubular Brake Gear substituted.

20. Arnhold Karberg & Co., Shanghai.
American Car Foundry Co., £312-6-0: £298-9-0: £199-14-0.
American Car Foundry Co., £280-16-0: £266-19-0.
Remarks: 42" steel typed wheels. American Arch Bar Trucks, wheels and axles by British makers.
American Car Foundry Co., £230-13-0: £216-14-0.

Remarks: Am. Arch Bar Truck with American type chilled cast iron wheels 30″ wheels and axles by British makers.

21. Buchheister & Co., Shanghai.
Heart Nelson & Co., £321-18-0: £304-6-0: £212-15-0.
Remarks: F. O. B. Glasgow 39 wps. from order.
Heart Nelson & Co., £315-4-0: £297-12-0: £209-2-0.
Remarks: Wheels and axles by Awen & Dyson. c. i. f. Pukow, 32 wps. from order.

22. Westphal King & Ramsay, Shanghai.
Heart Nelson & Co., £323: £303: £210.

23. Samuel McGregor, Shanghai.
Heart Nelson & Co., £321-15-0: £302-7-6: £211-5-0.
Luds Forge & Co., £363-10-0: £342-17-0: £210-10-0.
Remarks: Fox accelerated Oct., 09, c. i. f. Pukow. Consignees to take delivery in own craft. Pressed steel corrugated doors, under-frames, bogies with laminated side bearing springs.
Luds, Forge & Co., £317-10-0 £296-17-0: £197.
Remarks: Alternative.
Hearst Nilson & Co., £294-15-0: £275-7-6: £197-15-0.
Continental wheels and axles reduce £27-0-0 for Bogie and £13 for covered.
Luds Forge & Co., £344-10-0: £323-17-0: not quoted.
Remarks: Open ended type Bogie with coil bearings springs reduce £19.

24. Sino Francaise Engineering Syndicate, Shanghai.
Baune et Marpent, A—£319: 298-10-0: £270-10-0. £288: £266-10-0: £158-10-0.
Remarks: Pressed steel plate under-frames, English wheels and axles.
Remarks: Pressed steel plate under-frames, Belgium or Ger. Wheels.
B—£303-10-0: £282-10-0.
273: £251.
Remarks: Pressed steel plate under-frames, Eng. steel plate bogie on English wheels.
Pressed steel plate under-frames on steel plate Bogie, Belgium or German wheels.
C—£297: £276.
£266-10-0: £244-10-0.
Remarks: Pressed steel plate under-frames on dia. Bogies, Eng. Whs.
Remarks: Pressed steel plate under frames on dia. Bogies, Ger. or Bel. Whs.
D—£296: £275-10-0.
£265-10-0: £243-10-0.
Remarks: Normal profile steel under-frames, pressed steel plate bogies, English wheels.
Normal profile steel under-frames, pressed steel plate bogies, German or Belgium wheels.
E—£280: £259-10-0.
£250: £328.
Remarks: Normal profile steel under frames, steel plate Bogies, English wheels.
Normal profile steel underframes steel plate Bogies German or Belgium wheels.
F—£273-10-0: £253.
£243-10-0: £221-10-0.
Remarks: Normal profile steel under-frames, diamond type Bogies, English wheels.
Normal profile steel under-frames, diamond type Bogies, Belgium or German wheels.

25. Scott Harding & Co., Shanghai.
Benshaw & Co., £291: £277-8-0: £167-16-0.
Benshaw & Co., £279-10-0: £265-3-4 4-5.
Remarks: Steel plate and angle iron Bogies.
Benshaw & Co., £275-5-2 2-5: £260-19-7 1-5.
Remarks: Diamond Bogie frames.
Nicaise & Delcuve, £272-13-2 2-5: £254-9-0: £186-17-7 1-5.
Remarks: Built up under-frames.
Nicaise & Delcuve, £274-16-2 2-5 £256-12-0.
Remarks: Pressed steel under-frames.

26. Dodwell & Co., Shanghai.
Brush Electric Engineering Co., £276-1-6: £257-17-6: £151-19-0.
Remarks: Pressed steel under-frames and bogies laminated bearing springs.
Brush Electric Engineering Co., £253-10-6: £235-6-6.
Remarks: Built up steel under-frames (alternative A).
English Works, £246-7-0: £228-3-0.
Remarks: Built up steel under-frames (alternative B). Bearing springs.
English Works, £273: £254-16-0.
Remarks: Pressed steel under-frames and bogies, special bearing springs.
English Works, £250-9-0: £232-5-0.
Remarks: Built up steel under-frames pressed steel bogies (alternative A), bearing springs.
English Works, £243-5-6: £225-1-6.
Remarks: Built up steel under-frames, pressed steel bogies (alternative B), bearing springs.
English Works: £256-12-0: £238-8-0.
Remarks: Pressed steel under-frames, diamond frame bogie.
English Works, £234-1-0: £215-17-0.
Remarks: Built up steel under-frames (alternative A), diamond frame bogie.
English Works, £226-17-6: £208-13-6.
Remarks: Built up steel under-frames (alternative B), diamond frame bogie. All wheels are of mild steel disc centres, tubular brake beam substituted.

27. Vulcan Iron Works, Shanghai.
R. Y. Pickering & Co., £296-3-7 1-5: £278-8-4 4-5: £168-18-0.
Remarks: British make material. If wheels and axles by maker reduce £2-10-0 for bogie and £1-5-0 for covered wagons. Pay 10 days after each shipment.

28. Ilbert & Co., Shanghai.
A. Not specified, £290: £272-17-0: £185-15-0.
B. Not specified, £276: £259-7-0: £171-4-0.
Remarks: Belgium wagons, wheels by approved maker.
C. Not specified, £254-4-0: £236-11-0: £175-7-0.
Remarks: Wheels and axles by any good maker. For the covered wagon wheels and axles are by Vereingte Stahlweske Van des Zypenhoeln.
D. Not specified, £278: £261-9-0.
Remarks: Wheels and axles by Vereingte Stahlweske Van der Zypen.
E. Not specified, £269-15-0: £254-4-0.
Remarks: Wheels and axles by approved makers, rolled steel channel under-frames and diamond frame bogies, British throughout.
F. Not specified, £271-17-0: £252-2-0.
Remarks: Rolled steel channel under-frames, British wagon, wheels and axles by Vereingte Stahlweske Van der Zypen.
G. American Car Foundry £372: £357: £224.
Remarks: Wheels and axles by approved makers.

29. J. P. Bisset Co., Shanghai.
Hearst Nelson & Co., £310-19-0: £291-7-7: £209-4-10.

30. Arnhold Karberg & Co., Shanghai.
R. Y. Pickering & Co., £337-6-0: £316-16-0: £189-12-0.
Remarks: Couplers by Henricut Steel Foundry & Co., types and wheels by Steel Co. of Scotland.

31. Craig & Co., Shanghai.
£266-10-0: £251-2-6.
Remarks: Rolled steel channel under-frames, diamond frame bogie, wheels by approved maker.
£268-11-0: £249-1-6.
Remarks: Rolled steel channel under-frame, wheels and axles by Vereignte Stahlweske Vander Zypen.
£274-14-0: £258-6-0: £179-7-6.
Remarks: To our specification, wheels and axles by same maker as previous.
£251-2-6: £233-14-0: £169-2-6.
Remarks: To our specification wheels and axles by any good maker.
£287: £269-11-6: £183-9-6.
Remarks: To our specification, wheels and axles by approved maker, British.
£272-13-0: £256-5-0.
Remarks: Belgium wagons, wheels and axles by approved maker, British.

32. Horatio Robertson, Shanghai.
Société Anonyme des Ateliers Camille Bastanier, £285: £263: £206.
Remarks: Built up type all Belgian.
£311: £286: £218.
Remarks: Built up type Belgian Bodies underframe with British wheels and axles.
£216: £196: £172.
Remarks: Built up type Belgian make bodies under-frames without wheels which will be by approved British makers supplied separate. 180 delivery Jan. 1910.

33. Dodwell & Co., Shanghai.
Middletown Car Works, G. $1283.88: G. $1162.38: G. $927.56.
Remarks: To maker's design and specification. Am. wheel and axles.
Middletown Car Works, G. $1267.30: G. $1147.74: G. $912.23.
Remarks: Amendment.

34. American China Co., Shanghai.
Hich Loco & Car Works, £675: £695.
Remarks: Second hand cars.

35. Mackenzie & Co., Shanghai.
Cravens of Sheffield, £298-5-9 3-5: £278-5-0: £211-2-4 4-5: £163-2-0.
Nclellan Sto.
Remarks: Alternative.

36. Arnhold Karberg & Co., Shanghai.
Wegmann & Co., Cassell, £323-3-0: £304-6-0: £234-6-0.

37. Centrale de Construction, Shanghai.
Wegmann & Co., Cassell, £350: £340: £270.

38. Arnhold Karberg & Co., Shanghai.
American Car Foundry Co, £305-15-0: £292-5-0: £193-15-0.
Remarks: Wheels and axles and truck by British makers.
£275: £261-10-0.
Remarks: With steel typed wheels, 42″ wheels and axles by British makers.
£223-15-0: £210.
Remarks: American type chilled cast iron wheels, 33″ wheels and axles by British makers.

39. Vulcan Iron Works, Shanghai.
R. Y. Pickering & Co., £288-19-4 4-5: £271-10-9 3-5: £162-14-9 3-5.
Remarks: Pay ten days after each shipment; if makers' wheels and axles are used reduce £2-10-0 for the Bogies and £1-5-0 for covered wagons.

40. Fearon Daniel & Co., Shanghai.
Gloucester Ry Carriage Wagon Co., £333-6-0: £313-2-0: £191-18.

41. Forbes & Co., Shanghai.
Pressed Steel Car Co., U. S., G. $1750: G. $1670.

42. Garrells Borner & Co., Shanghai.
Midland Ry Carriage Wagon, £320-1-0: £311: £203-13-0.
Remarks: Alternative sole bars reduce £5 each Bogie. Alternative doors reduce £3 for high sided and £1-10-0 for low sided.

43. Carlowitz, Shanghai.
German make, £284-8-0: £270: £188-7-0.
Remarks: Without brakes 4 block screw brake for bogie at £10-9.

44. Nicholas Tsu, Shanghai.
Not specified, £348: £338: £268.
Remarks: 4 block screw brake for covered at £12-9.

45. Diederichsen, Shanghai.
Waggong Tabrich Uerduigen, £385.
Remarks: Order not later than 15-7-09.

46. Chee Sheng Iron Works, Shanghai.
$2800: $2500: $2200.
Remarks: Duty, insurance extra.

47. Olof Wijk & Co., Shanghai.
A. Makers. £353-10-0: £336: £223-10-0.
Remarks: Exclude cost of erection.
B. Makers, £338: £320-10-0: £208.

48. Compagne Générale de Constructions Industrielles, Shanghai.
$2650: $2250: $2800.

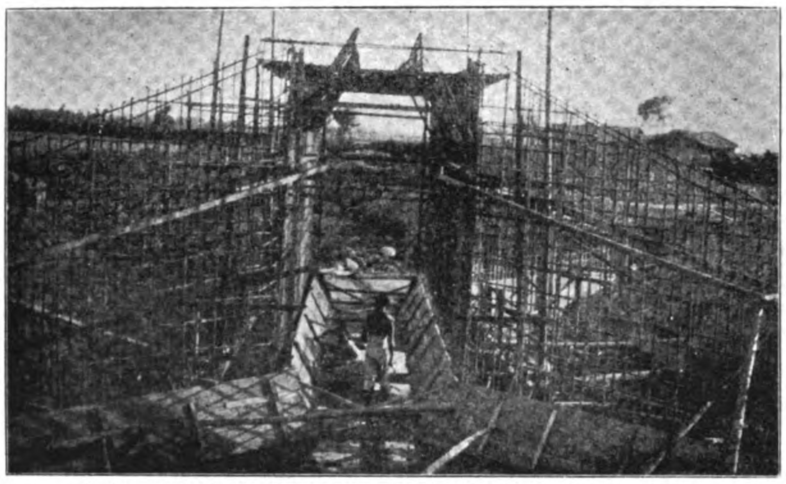
COMPARATIVE LIST OF TENDERS ON INDENT 51 FOR EIGHT LOCOMOTIVES FOR THE IMPERIAL TIENTSIN-PUKOW RAILWAY (SOUTHERN SECTION.)

The contract for six locomotives was awarded to the North British Locomotive Co. of Glasgow, through Messrs. Jardine, Matheson & Co., Ltd., and two locomotives to the Baldwin Locomotive Works of Philadelphia, through Messrs. Arnhold, Karberg & Co.

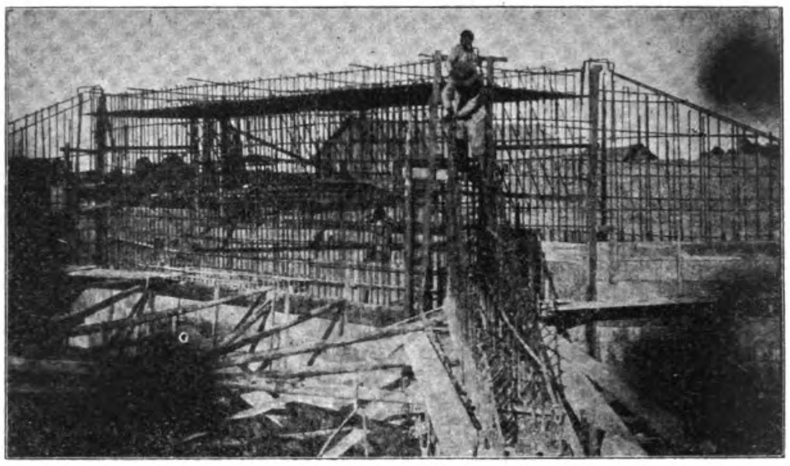
1. Scott, Harding & Co., Shanghai.
A. Borsig & Co., £3157-12-6: £25261.
Robert Stephenson, £3399-10-0: £27196.
N. British Loco. Co., £3425-7-6: £27403.

2. Von Duering Wibel & Co., Shanghai.
At their option £3137-10-0: £25100.

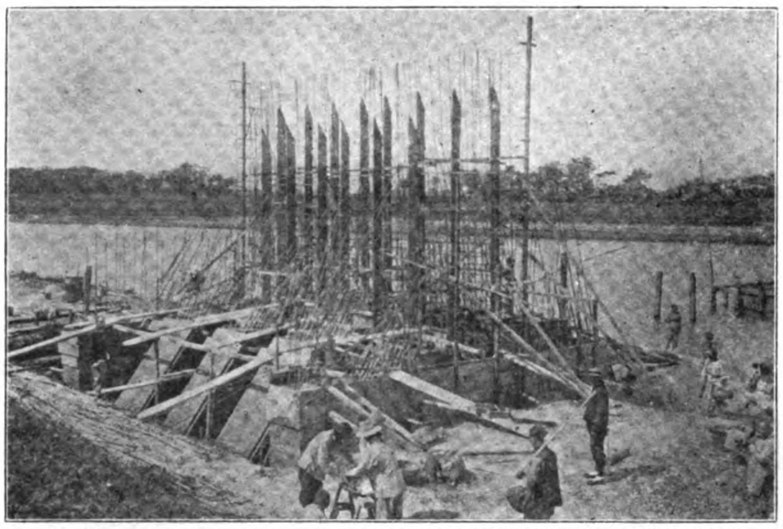
ANHUI RAILWAY.—REINFORCED ABUTMENTS AND PIER AT WAN-CHI, 20 MILES FROM WUHU



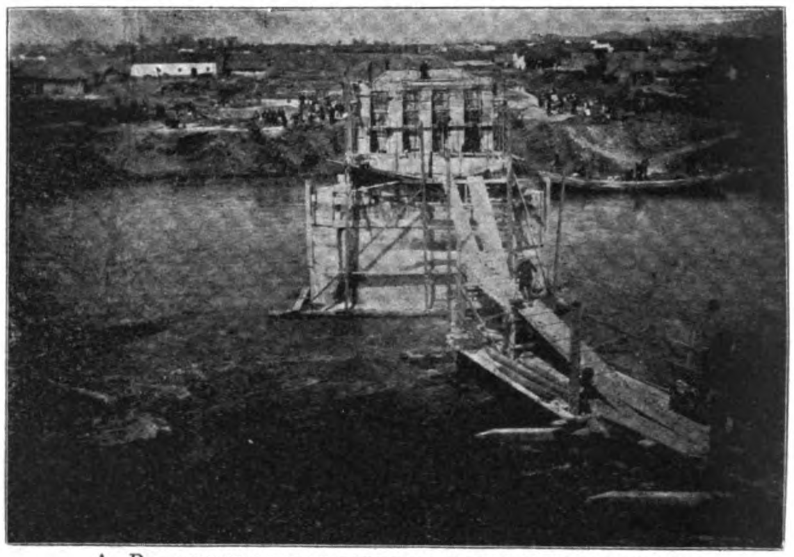
A. R.—LARGE REINFORCED CULVERT UNDER CONSTRUCTION



A. R.—REINFORCED CONCRETE CULVERT UNDER CONSTRUCTION

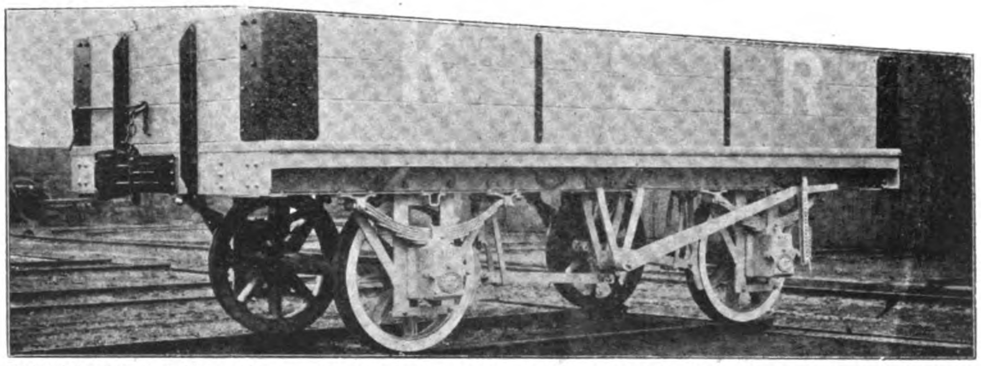


A. R.—REINFORCED CONCRETE ABUTMENT UNDER CONSTRUCTION



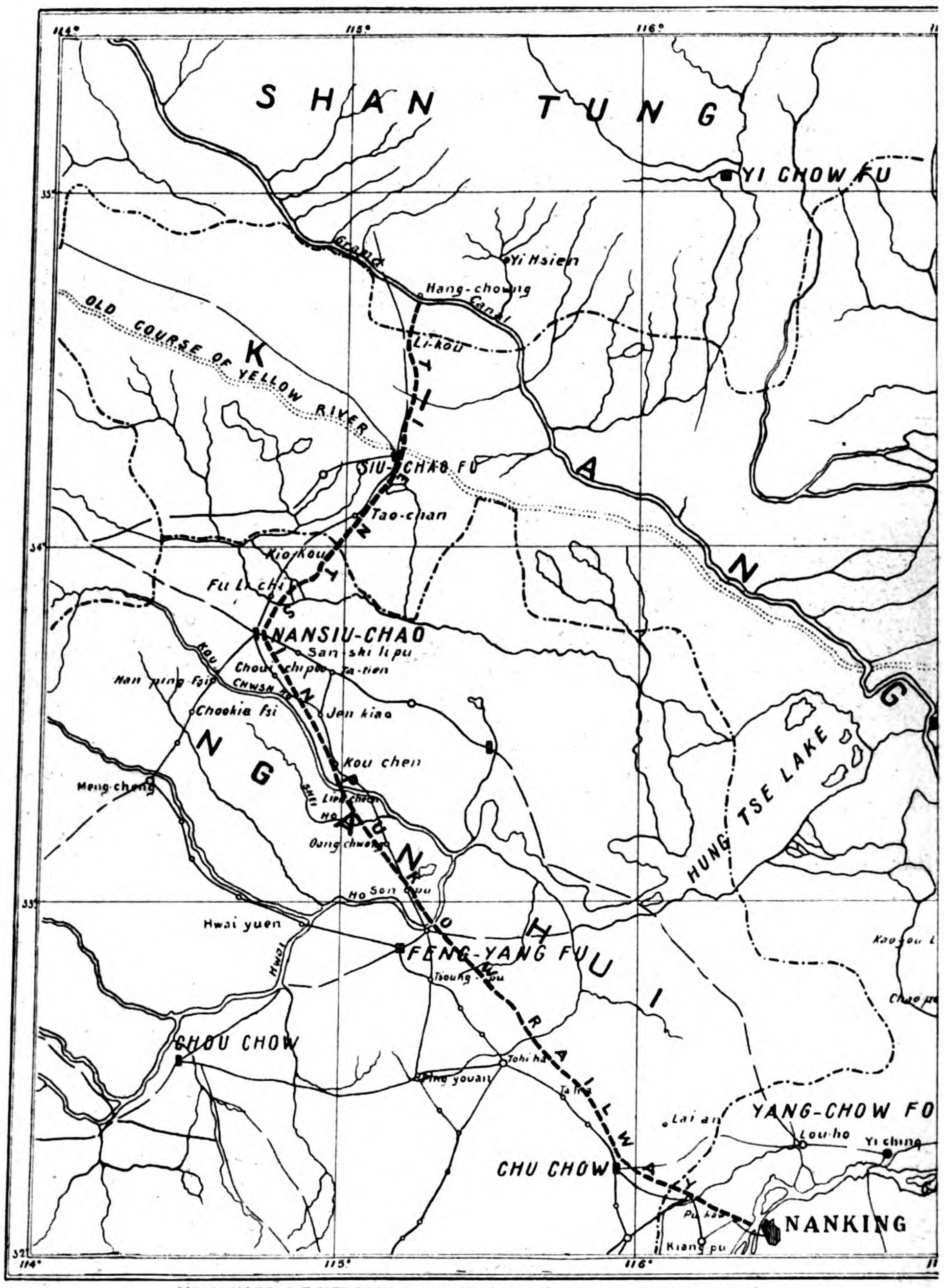
A. R.—LIUHU BRIDGE PIERS OF REINFORCED CONCRETE

3. Ilbert & Co., Shanghai.
Vulcan Foundry, £3420-0-0: £27360.
British make £3305-0-0: £26440.
German make £2936-0-0: £23488.
Any good make, £2775-0-0: £22200.
4. Dodwell & Co., Shanghai.
N. British Loco Co., £3415-0-0: £27320.
Société Anonyme des Ateliers de Thirian £2795-0-0: £22360.
A. Borsig, £3222-0-0: £25776.
5. Mitsui Bussan Kaisha, Shanghai.
American Loco. Co., £3154-6-0: £25234-8-0
American Loco. Co., £3053-3-6: £24425-8-0.
American Loco. Co., £2973-11-4: £23788-10-8.
6. Mitsui Bussan Kaisha, Shanghai.
N. British Loco. Co., £3491-16-0: £27934.
Buper Peacock & Co., £3743-10-9: £29948-6-0.
7. Olof Wijk & Co., Shanghai.
Société Anonyme, £3809-10-0: £30476.
John Cockerill Seraing Machine & Locomotive, £3627-0-0: £39016.
8. Melchers & Co., Shanghai.
Works Essnigen, £3130-17-0: £25046-16-0.

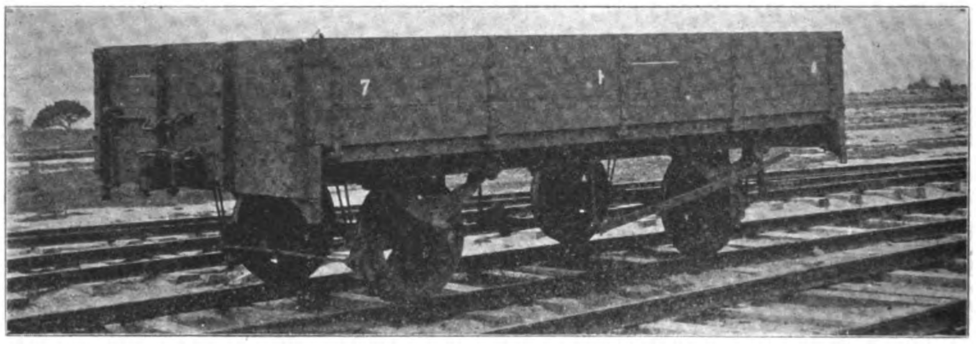


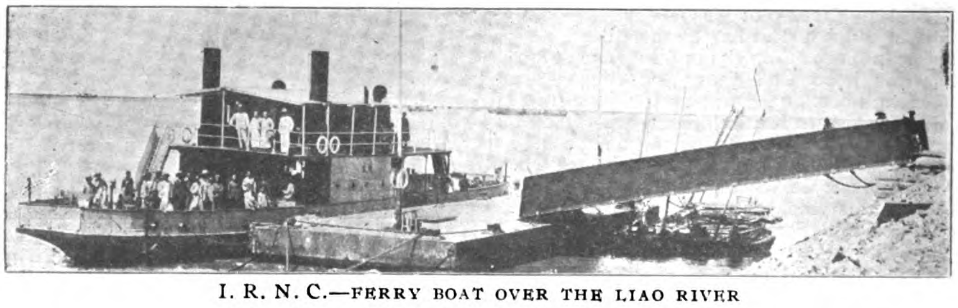
CHEKIANG RAILWAY.—TYPE OF RENSHAW & CO.'S GOODS WAGON, FURNISHED THROUGH MESSRS. BRIGHTEN, MALCOLM & CO., LTD.

9. Vulcan Foundry, Shanghai.
Makers, £3500-0-0: £28000.
10. Andersen Meyer & Co., Shanghai.
Société Anonyme des Ateliers de Thirian, £2925-0-0: £23400.
11. Andersen Meyer & Co., Shanghai.
Société Anonyme Franco Belge of Rasunes, £3591-6-0: £28730-8-0.
12. Andersen Meyer & Co., Shanghai.
Andrew Barclay Sons, £3645-0-0: £29160.
13. Carlowitz & Co., Shanghai.
Heuschel & Sohn, Cassell, £3108-0-0: £24864.
14. Sino French Syndicate, Shanghai.
Société Anonyme de Saint Leonard, £3650-0-0: £29200.
15. Mackenzie & Co., Shanghai.
Robert Stephenson, £3437-10-0: £27500.
16. Westphal King & Ramsay, Shanghai.
Nasmyth Wilson & Co., £3410-0-0: £27280.
17. Siemssen & Co., Shanghai.
Georg Egestorff, £3095-0-0: £24760.
18. Innis & Riddle, Shanghai.
Andrew Barclay Sons, £3996-0-0: £31968.
19. Bielfeld & Son, Shanghai.
Robert Stephenson, £4625-0-0: £37000.
20. China Japan Trading Co., Shanghai.
N. British Loco. Co., £3513-16-6: £28110-12-0.
21. Telge & Schroeter, Shanghai.
A. Borsig, £3240-0-0: £25920.
Georg Egestorff, £3250-0-0: £26000.
Krauss & Co., Munich, £3280-0-0: £26240.
Hawthorn Leslie, £3879-0-0: £31032.
22. Samuel McGregor & Co., Shanghai.
N. British Loco. Co., £3451-0-0: £27608
Kitson & Co., Leeds, £3565-0-0: £28520.
Beyer Peacock & Co., £3689-0-0: £29512.
23. China Gen. Engineering Co., Shanghai.
Les Ateliers Métallurgiques, £2460-2-2: £19-654-4-0. £458-10-11: £3668-7-4. £2918-13-1: £23322-11-4.
24. Buelfeld & Ones, Shanghai.
Hohensolhun Dusseldorf Grafewberg, £3708-0-0: £29664.
25. Brighten Malcolm & Co., Shanghai.
Hudswell Clarke, £4515-0-0: £36120.
Vulcan Foundry, £3395-16-6: £27166-12-0.
26. Shewan Tomes & Co., Shanghai.
Hawthorne Leslie, £3469-0-0: £27752.
27. Jardine Matheson, Shanghai.
N. British Loco. Co., £3143-0-0: £25144.
Haunoversche Maschinenbau Action Gesellschaft, £2885-0-0: £23080.
Vulcan Foundry, £3347-0-0: £26776.
Lenia Loco. Machine Co., £2971-0-0: £23768.
£2802-0-0: £22416.
28. Samuel McGregor & Co., Shanghai.
Winhy & Co., £2853-0-0: £22824.
A. Borsig, £3234-0-0: £25872.
29. Horatio Robertson, Shanghai.
Société Anonyme des Ateliers de Thirian, £3060-0-0: £24480.
30. Garrells Borner, Shanghai.
F. H. Maffie, £3202-0-0: £25616.
31. Tahata & Co., Shanghai.
Berliner Machinenbau Action Gesellschaft, £3624-6-3 5/8: £28994-10-5.
32. Craig & Co., Shanghai.
Not specified, £3264-12-6: £26117.
£2900-15-0: £23206.
£2741-17-6: £21935.
33. J. Whittall & Co., Shanghai.
N. British Loco. Co., £3150-0-0: £25200.
34. Buchheister & Co., Shanghai.
Robert Stephenson, £3509-0-0: £28072.
Kitson & Co., £3632-0-0: £29056
Beyer Peacock, £3776-0-0: £30208.
35. Am. Chinese Co., Shanghai.
Beyer Peacock, £3976-0-0: £31808.
36. J. B. Bisset, Shanghai.
Robert Stephenson, £3388-6-2: £27106-9-4
37. Westphal King & Ramsay, Shanghai.
Haunoversche Machinenbau Haunover Linden, £3041-0-0: £24328.
Nasmyth Wilson, £3510-0-0: £28080.
38. Am. Chinese Co., Shanghai.
Robert Stephenson, £3830-0-0: £30640.
39. Arnhold Karberg, Shanghai.
Baldwin Loco. Works, £3127-0-0: £25016.
Baldwin Loco. Works, £3037-0-0: £24296.
Baldwin Loco. Works, £2767-0-0: £22136.
40. Westphal King & Ramsay, Shanghai
Robert Stephenson, £3410-0-0: £27280
41. Westphal King & Ramsay, Shanghai.
N. British Loco. Co., £3420-0-0: £27360



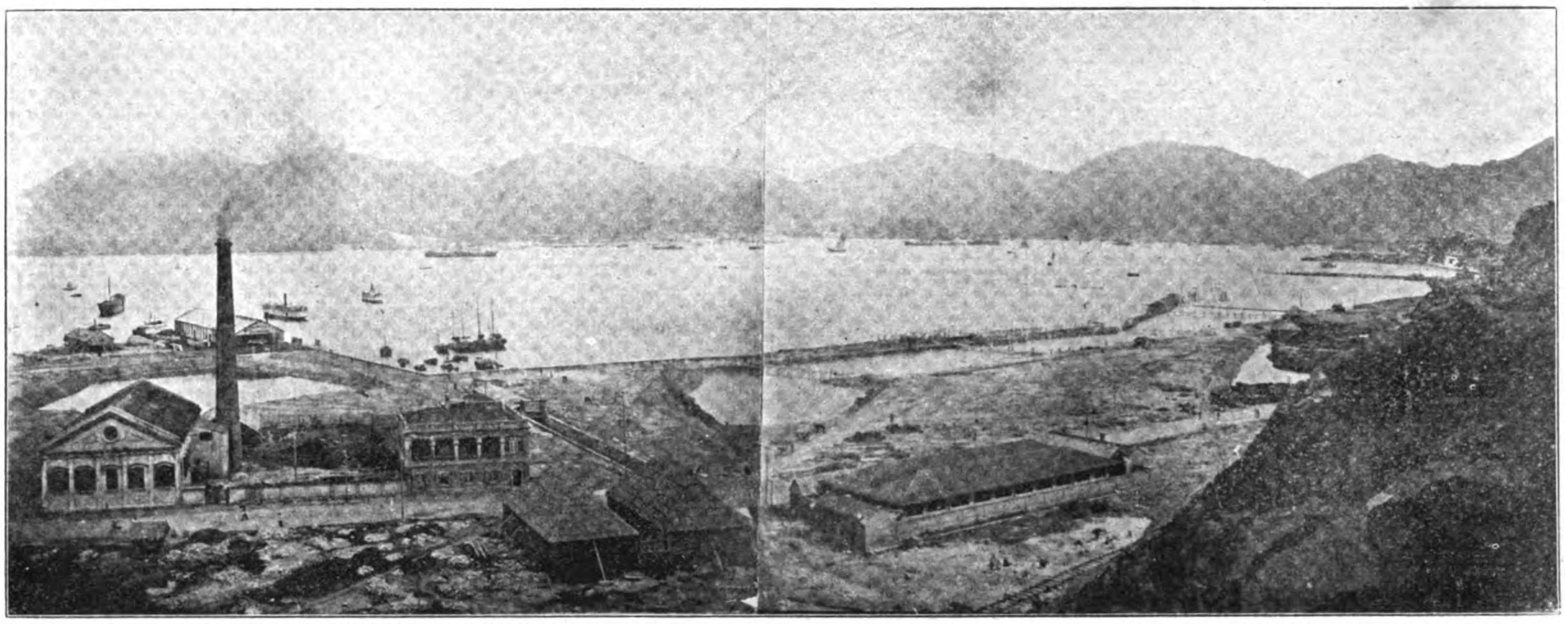
TIENTSIN-PUKOW RAILWAY.—(SOUTHERN SECTION)


S. C. R'Y.—FREIGHT CAR


I. R. N. C.—FERRY BOAT OVER THE LIAO RIVER

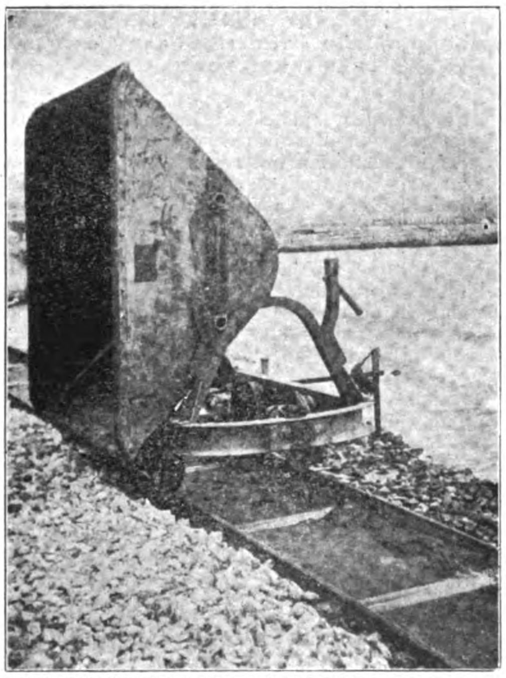
KOWLOON-CANTON RAILWAY

(BRITISH SECTION.)



KOWLOON-CANTON RAILWAY.—VIEW OF RECLAMATION FOR KOWLOON TERMINAL YARDS AND STATION

The Kowloon-Canton Railway project that has for its purpose the safeguarding of the interests of Hongkong as a distributing center for South China by establishing railway connection with the trunk line that, when completed, will run from Canton to Peking, is perhaps one of the most important undertakings in South China. When the Canton-Hankow section of the trunk line to Peking was projected and a concession granted the American-China Development Company, it was proposed to construct a deep water harbor in the Chinese territory near Canton, the terminus. Hongkong at once realized that if such a port were established and no effort made to secure the benefits of railway connection with the trunk line, her future as a distributing center for South China would be threatened. A concession was secured in 1898 by the British and Chinese Corporation to build a line connecting Kowloon and Canton which, when completed, would provide the needed railway connection with the trunk line and thus preserve to Hongkong at least her share of the trade even should the deep water harbor contemplated at Canton be realized.



KOWLOON-CANTON RAILWAY.—GERMAN DUMP CAR

After securing the concession, the British and Chinese Corporation remained inactive and it was not until the Government and commercial interests of Hongkong were roused to the necessity of securing this railway connection at all hazards even to the extent of pledging her revenues, that the project took form. As evidence of the interest taken we quote from the speech of the Hon. Gresham Stewart, Chairman of the Committee of the China Association, made in October, 1905, in support of a petition to the Governor, as follows:

"Whatever the reason, the fact remains that a big financial body like the British and Chinese Corporation have utterly failed to utilize the concession they have held, and it is unreasonable to suppose that this colony will sit still and run the risk of tremendous injury without doing something to protect itself." And further, he continued:

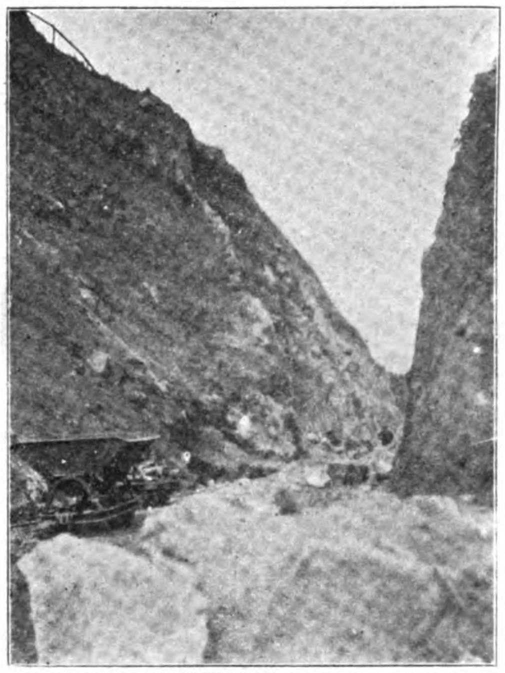
"What we would like to see laid down is the broad principle that for the preservation of the colony, and the safeguarding of British interest in South China, the colony be empowered, if necessary, to pledge its credit to ensure the making of the railway and securing the terminus at Kowloon."

It must be understood that the concession secured by the British and Chinese Corporation contemplated only the construction of the line in Chinese territory. From Canton to the boundary of the leased territory is approximately 89 miles and the distance from the boundary of the leased territory to Kowloon, a distance of 22 miles. Up to the time of Mr. Stewart's speech in October, 1905, it might be said that the concessionaires had accomplished nothing. But in the mean time, the American-China Development Company agreed to give up its concession to construct the Canton-Hankow and receive in return the sum of $6,750,000 U. S. C. in compensation. The Chinese Government failed in an attempt to raise sufficient money by a domestic loan to pay off the American company and was obliged to negotiate a foreign loan. This was the opportunity for Hongkong and arrangements were made by the latter to advance the Chinese the sum of £350,000 secured by the opium revenue of Kwangtung, Hupeh and Hunan, bearing interest at 4.5% per annum and redeemable in 10 years. This secured to Hongkong traffic connection with the Canton-Hankow and eliminated the possibility of severe competition from the railway as threatened in the original proposed plans for the Canton terminus.

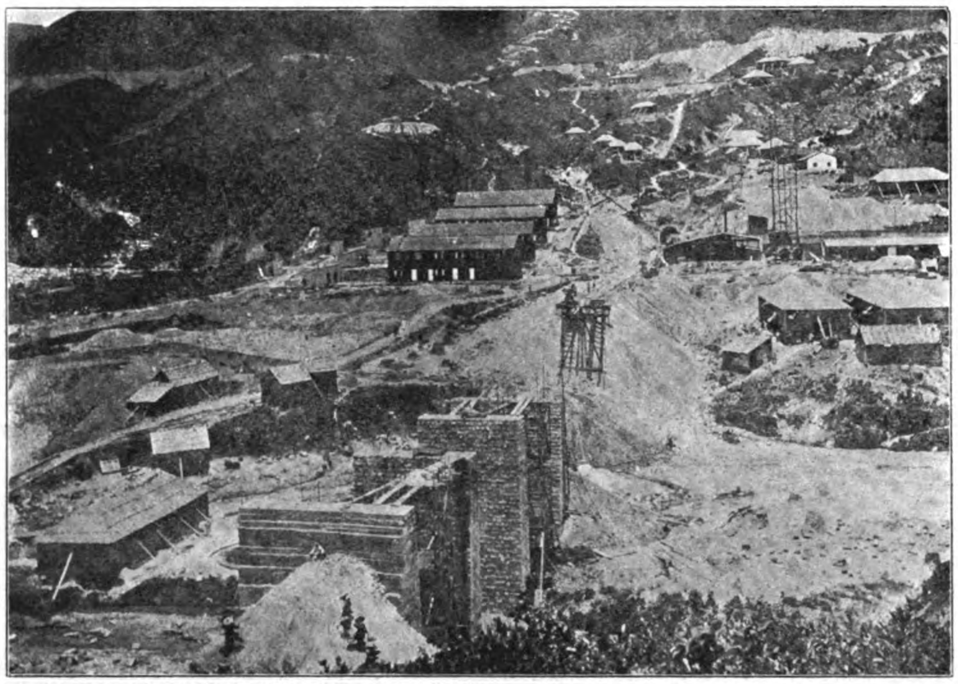
The Government of Hongkong then proceeded to make arrangements to construct the line through British territory and in the fall of 1905 surveys for final location were completed and submitted and the title to the land for the right of way resumed by the Crown. Before the end of 1905 about two and a half miles embankment work were completed under the direction of the Public Works Department.

The estimated grade of the line from Kowloon to Samchun (the point at the border of British territory) is about one in one hundred. There are about 50 bridges running from five feet in length to the largest one of 200 feet, the latter having two 60 and two 40 foot spans.

These are built largely of masonry and concrete, but where the necessary foundations could not be laid, girder bridges with brick piers were constructed. All the bridges were built sufficiently wide to accommodate a double track.



KOWLOON-CANTON RAILWAY.—GERMAN DUMP CAR



KOWLOON-CANTON RAILWAY.—NORTH FACE OF BEACON HILL TUNNEL, FROM ACROSS SHATIN VALLEY

The most difficult features of construction were the tunnel work and the cuts. In all there are five tunnels, the longest being 7,256 feet and the balance 924 feet, 350 feet, 175 feet and 150 feet respectively. The tunnels 350 feet and 150 feet in length were driven through solid rock, while the operations on the balance found disintegrated granite alternating the solid rock. All the tunnels were driven wide enough to accommodate a double track with the exception of the 7,256 foot, and the span of the arch in each of these tunnels is 35 feet lined with brickwork. The drainage is from the ends of the tunnels in each instance. The cuts were also 35 feet wide in which solid rock and disintegrated granite predominated.

The steel used is the English standard tee rail weighing 85 pounds to the lineal yard, each rail being 35 feet in length. They are being laid with matched joints and ordinary angle bars are utilized. Suspended joints are the standard and five-eighths spikes with chisel point and ordinary hook head are used.

Australian hardwoods are used for sleepers. The standard for jarrah ties is 9″×5″×10 feet and distributed at an average of 2,000 to the mile, while the standard of New South Wales hardwood is 10″×5″×10 feet.

The embankments throughout are 17.5 feet wide designed for a single track except where material was available from the cuts, in which instances they were widened to 30 feet so as to accommodate the proposed double tracking. The labor used in the construction across the paddy fields was mostly comprised of native women and the vehicle the native basket. The material used in the fields consisted of mud; on the slopes, turf; and the rest of the embankment is built largely of disentegrated granite. The earth from the heavy cuts was transported generally in small dump cars propelled on a two foot gauge track by coolies. These cars were supplied by Arthur Koppel, Berlin.

The labor for the tunnel work was imported from India as the local natives could not be induced to undertake underground work. Finally some of the coolies, returned from South Africa, replaced the Indians, as the former had become expert at this work. Compressed air plants were installed at the ends of the big tunnel to operate the pumps and the drills. Railways were installed to handle the dirt and rock. Contracts for portions of the work on the smaller tunnels were let to Italian contractors.

The bricks used were manufactured by the company in its brick plant installed on the right of way and were transported in Indian

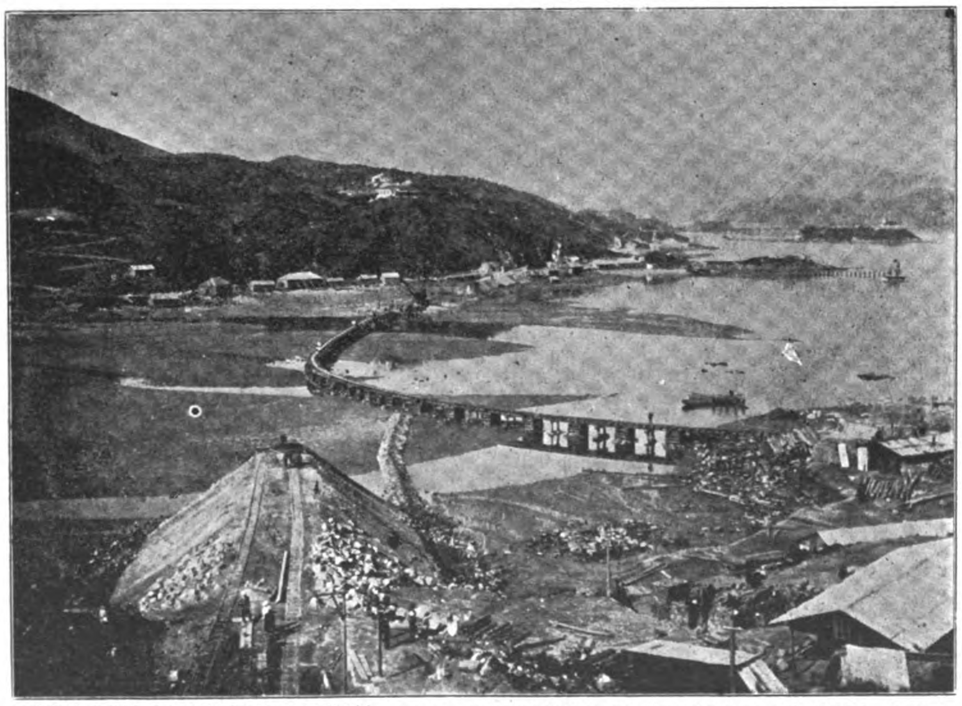
NORTH PORTAL OF TAIPO TUNNEL. BRIDGE 25 IN FOREGROUND TO LEFT. THE TEMPORARY ROAD HAS BEEN TAKEN DOWN

carts drawn by bullocks. This means of transport was found satisfactory and economical.

The reclamation work which is to provide a terminal yard at Kowloon with seven or eight miles of sidings is well under way and the work was expedited by utilizing a standard gauge track from the heavy cuts to carry the earth, etc., for the fill. Heavy wooden dump carts hauled by switch engines were used. The rails will be used on the permanent way and the switch engines were part of the company's regular rolling stock. Sidings will also be provided to connect with the warehouses and godowns.

The rolling stock will be of British standard. Two locomotives have been ordered to add to the present yard engines and the coaches and freight cars will be ready for use by the time the road is officially opened next year. The estimates for the British section alone is believed sufficient to provide rolling stock for over two-thirds of the line from Kowloon to Canton. Along the 22 miles of line there will be five stations. These stations as well as the buildings at Kowloon terminal will be built of brick and of a substantial character.

The cost of this railway has been the subject of much discussion in the colony. The original estimates submitted amounted to $5,053,274. These estimates did not include many items



KOWLOON-CANTON RAILWAY.—VIEW FROM NORTH PORTAL OF NO. 5 TUNNEL, SHOWING BRIDGE NO. 25 UNDER CONSTRUCTION

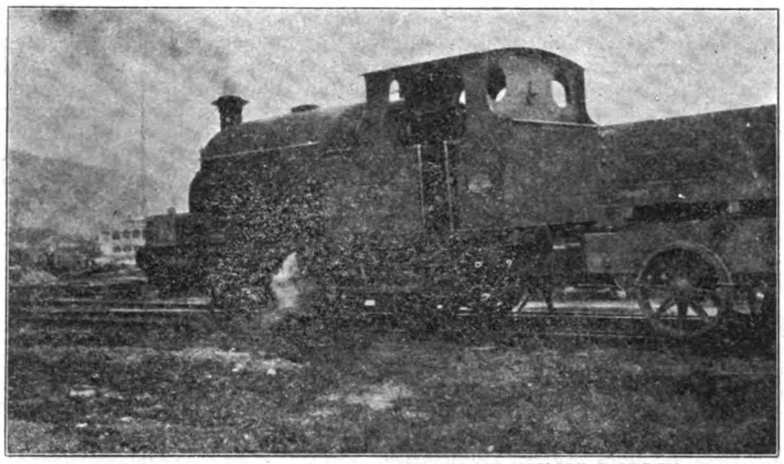
of cost and were based on a rather indefinite preliminary survey. They did not make provision for rolling stock, shops, etc Indeed they were not recognized as other than a rough calculation. It was not until June, 1907, that the first comprehensive estimate was submitted by the Resident Engineer. It did not provide for rolling stock or workshops, and amounted to $8,003,642. Again in December, 1907, estimates including rolling stock and resumption of land at Blackhead's point were submitted which brought the amount up to $9,860,283.83. In May, 1909, the estimates submitted included the workshops and all items of construction with the exception of land purchase or resumption and amounted in all to $11,004,128. It is expected that up to the end of the year 1909, the sum of $10,015,223 will have been expended and the budget for the year 1910 provides for an expenditure of $1,315,625, which will bring the cost of the line up to about $12,000,000. Of the expenditure for 1910, $374,805 will be used for the resumption of land and the balance will be expended as follows: Bridges, $120,000, fencing, $14,653; track, $125,000; workshops, $60,000; stations, $238,300; station machinery, $25,000; furniture, $5,000; rolling stock, $80,000; tools and plant for locomotive and carriage shops, $60,000.

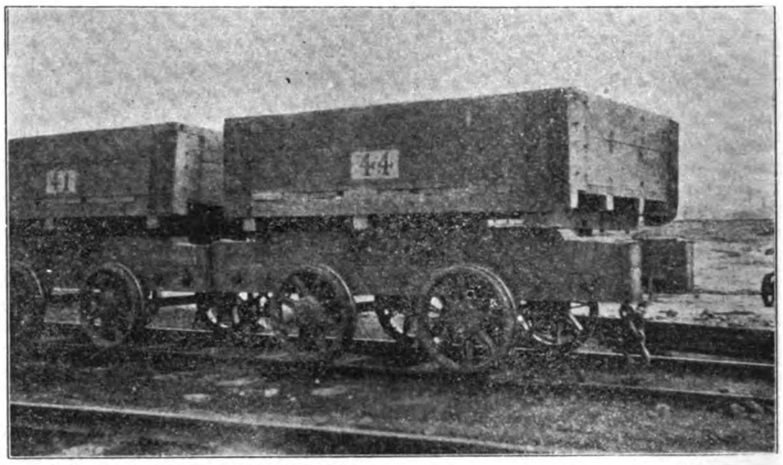
The following comparative table of estimates made in 1905, 1907 and 1909 respectively will be of interest.

	1905	1907	1909
Survey	37,642.00	42,267.65	42,277.65
Land	10,500.00	1,196,538.02	1,195,879.20
Earthwork	1,530,997.00	2,260,000.00	2,268,176.05
Tunnels	1,924,860.00	2,503,415.00	3,499,824.69
Roads	....	82,500.00	84,979.84
Bridges and Culverts	412,650.00	1,033,577.67	1,082,614.50
Fencing	....	32,209.00	40,399.45
Telegraphs	....	26,864.00	26,971.42
Ballast and Permanent Way	716,625.00	915,955.94	864,259.25
Station Buildings, Machinery and Furniture	315,000.00	489,380.00	494,998.47
Workshops and Stones	....	....	60,000.00
Plant including rolling stock, etc.	....	714,000.00	691,540.10
General charges, including salaries, quarters offices, medical and other expenses	105,000.00	450,234.38	534,885.56
Home charges	....	70,099.80	74,478.29
Accounts	....	....	42,843.53
Damages, etc	....	43,242.37	....
Total	5,053,274.00	9,860,283.83	11,004,128.00

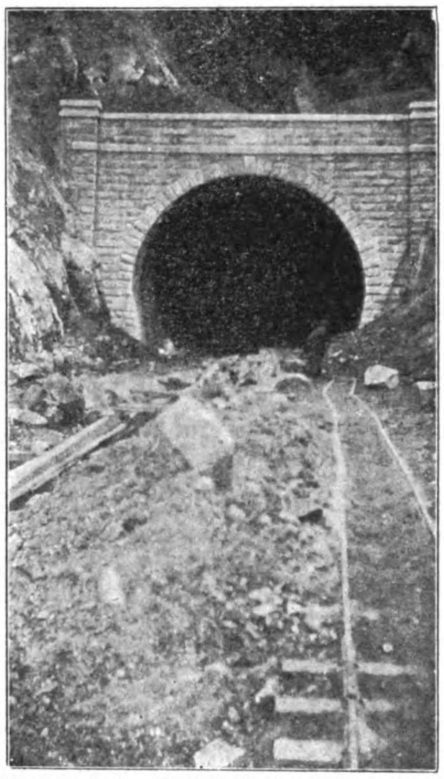
At a meeting of the Hongkong Legislative Council, held May 14th, 1909, upon which occasion the report of the Resident Engineer was presented for consideration, Sir Frederick Lugard, Governor of Hongkong, made the following comprehensive statement in regard to the finances and the progress made in construction which is perhaps the most complete and authoritative review of the line. His Excellency said:

"Gentlemen, before proceeding to the business of the day, I have to make a statement regarding the progress of the railway. There is among the papers laid on the table this afternoon first a report by the chief resident engineer, and in connection with that report you will no doubt notice that the various departmental reports which have been laid on the table this afternoon are not in the usual form. They do not bear the heading 'Laid Before the Legislative Council', but are headed Appendix with a letter of the alphabet. The reason of this slight alteration is that we propose in future to somewhat condense these departmental reports and publish them in a small volume, which will be laid before the Council. But in order not to further delay these reports, such as are already printed have been laid this afternoon. On February 6th last I made a statement to the Council as to the progress and the financial position of the Canton-Kowloon Railway. And again, when introducing the estimates on 24th of September last, I reported such progress as had taken place in the interval, and I promised that I would make an annual report to the Council, both as regards finances and the progress of the railway, the liability which we are incurring in respect of it; and the ways in which these liabilities are to be met. I much regret the delay in presenting this annual report and laying this statement. I had hoped it would be ready at one of the earlier meetings of the year. We have no resolution this year before Council for votes for the construction of the railway during the year because, under the new financial instructions, which have been lately received from the Colonial Office, the requisite funds for the construction during the year are included in the annual estimates. I propose, however, to follow the course I did last year, and to give you as full a statement of events connected with the railway as I can, and I will endeavor to make as clear as possible the situation both as to expenditure and the prospects both as regards time and date of completion. And I hope I shall be able to amplify the report of the chief resident engineer, and draw your attention to the significance of the figures. I will deal first with expenditure, and I am sorry to say it is not an exhilarating subject. First of all we had an estimate by Mr. Bruce which amounted to $5,053,274. That estimate, as I explained in my former statement, was a very rough one. It was based on a very rough preliminary survey and included no calculation of quantities and many important items such as rolling stock, workshop, etc. It was accepted as a rough estimate by my predecessor when the railway first began. The first full estimate that we had from the chief resident engineer, appointed by the consulting engineers, was in June, 1907. That amounted to $8,003,642. It did not include any provision for rolling stock or for workshops, because at that time it was impossible to know exactly what rolling stock would be required, and whether or not we would require any workshops. At the end of the same year, December, 1907, a further estimate was submitted to the Council, which amounted to $9,860,283. Provision for rolling stock was inserted and the estimate also included the cost of the resumption of the deep sea wharf in the neighborhood of Blackhead's point, but it still did not include any provision for workshop as the subject was still under discussion. The provision made in the estimate for land was also somewhat vague. No final provision had been taken as regards the site for the terminal station. The estimate which is included in the papers laid this afternoon amounts, as you will see, to $11,004,128. This includes workshops and all items, but it is still possible that the land resumption may not be adequately provided for as all matters in connection with that subject are not yet finally concluded. The excesses of this estimate over the one which was laid before the Council in December last amount to $1,143,845, but if you will turn to column E, on page ten of the report, you will see that of this total sum $996,409 represented the cost of the tunnels. $120,000 of this excess is provided for workshops and there remains a balance of $27,436 which is distributed over various items. But you will see also in the later estimates that there is a great variation of the figures from those contained in the estimate of last year. There is a saving of $82,500 for rolling stock, and $51,700 in ballast and permanent way, making a total of $134,000 saving on these two items. This is met by excess of $90,000 on salaries and $43,000 on accounts, making $153,000. Bridges show an excess of $47,261; half of that is met by savings on various items, and the other half goes to swell complete the total excess in the estimate of $1,143,845. These large over and under estimates are most unsatisfactory, and they show that the figures which have been supplied have not been reliable. But at the same time I would remind you that the mere question of estimates does not mean a reflection on British engineering. It is partly due to the fact that we are engaged in constructing a tunnel such as has not been undertaken in this part of the world before, and under which the conditions both as regards labor and as regards explosives were extremely difficult to foresee. The variations also under the estimates are in part due to the fact that all the data of the railway were not known, and indeed are not known fully yet. Even had the railway been in the hands of contractors there would have been many items excluded for which supplementary estimates would have been required. Nevertheless, we have this fact that this tunnel will cost nearly a million more than the estimate given to us at the end of last year, and that in spite of the fact that the engineers had acquired already a year's experience in dealing with conditions under which the tunnel had to be constructed. During the year that is passed the quality of the labor has greatly improved. The coolies have been more efficient, and understand the work better. We have been able to engage a number of coolies returned from South Africa who have been trained miners, and have been a great acquisition to work in the tunnels. There has been less sickness and fever. The tunnel has been found to be approximately 44 feet less in length than it had been anticipated, owing to an errror in the original triangulation. These causes have receded the cost per foot in a remarkable way. You will see on page 2 a very striking statement in this connection. The heading cost per foot in 1907, $184, which has been reduced to $70.04. The enlarging in 1907 costs $275 which has been reduced to $140.86; the bricking-in was $221 and has been reduced to $113,54. Now, were it not for these very large reductions per lineal foot the excesses would have been something I dread to calculate. Obviously, it is beyond my personal control whether or not the estimate formed by the engineers is adequate. The staff which has been employed has been reduced wherever it has been possible to do so without detriment to the efficiency of the work. The medical arrangements which are practically carried out by Government have increased in efficiency. Everything in fact that the Government has been able to do has been done. The cost of the tunnel—I speak of the big tunnel only; you will of course recollect that sum includes the smaller one as well as the large one—is estimated as you will see in the report at $3,000,000. Its length is 7,212 feet, which works out at $416 a foot; that is to say $2,196,342 a mile or in round figures about £200,000 a mile. If we add to that the cost of permanent way and the share of the tunnel's length in the general charges of the railway, you will see that the cost of the tunnel is not less than one-third of the total cost of the railway. As regards the special difficulties which have been met with, and which are held accountable for this large increase, I refer you to the report, in which you will see what the chief resident engineer has to say on the subject. The excess over the estimate in December, 1907, is in part due to the fact that we are completely lining the tunnel throughout. It had been hoped that in certain sections where the rock is exceedingly hard, lining might have dispensed with, but on Mr. A. J. Barry's late visit it was decided to line it throughout, but with a reduced number of rings of brickwork in those sections that were hard. Because the stratum was full of faults it was feared that the vibration of the train would bring the rock down on top of passing trains. Of the other tunnels the only one which has given any difficulty and on which any extra cost has been incurred is the Taipo tunnel, where heavy landslips were experienced owing to the slushy clay which formed the hillside. This necessitated very elaborate timbering at great cost. Its length is 924 feet, of which 573 feet had been driven, and 158½ feet lined on 31st December last. The other excesses to which I specially alluded, $90,000 salaries. $43,000 accounts include the cost of the salary for a portion of the year of an expert whom we hope to obtain from India to organize the work of opening the line and advise us on several subjects, including negotiations for the joint working agreement with the Canton Section. The loss on exchange is largely responsible for the ex-





KOWLOON-CANTON RAILWAY.—BRITISH LOCOMOTIVE AND DUMP CARS

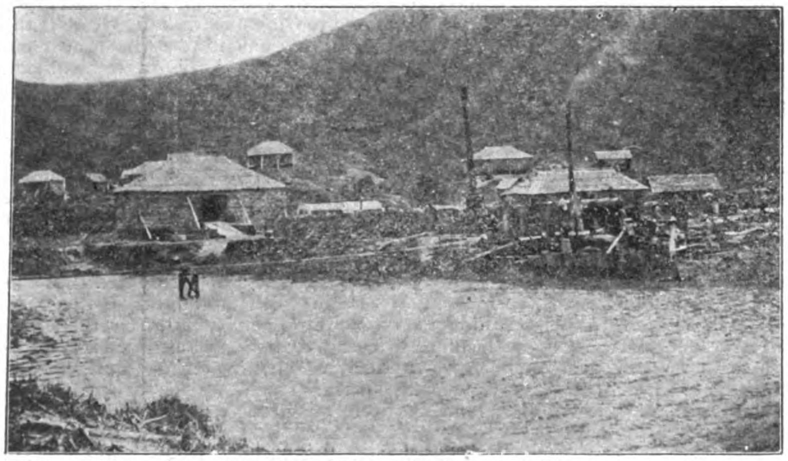


KOWLOON-CANTON RAILWAY

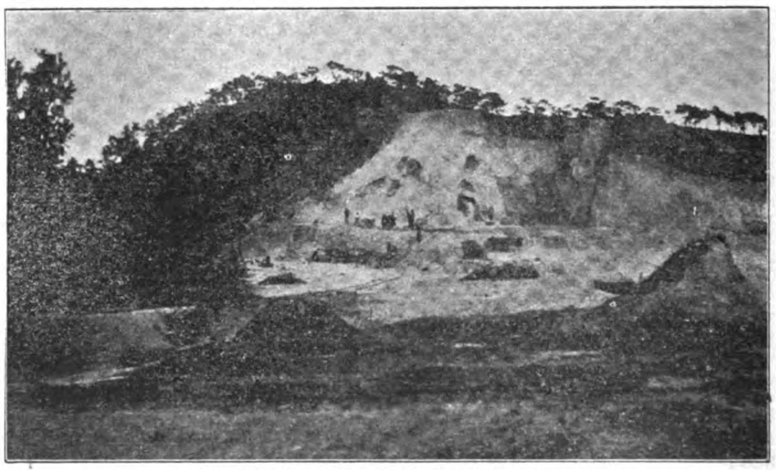
SHORT TUNNEL NEAR KOWLOON

A TUNNEL ENTRANCE

SHORT TUNNEL NEAR KOWLOON

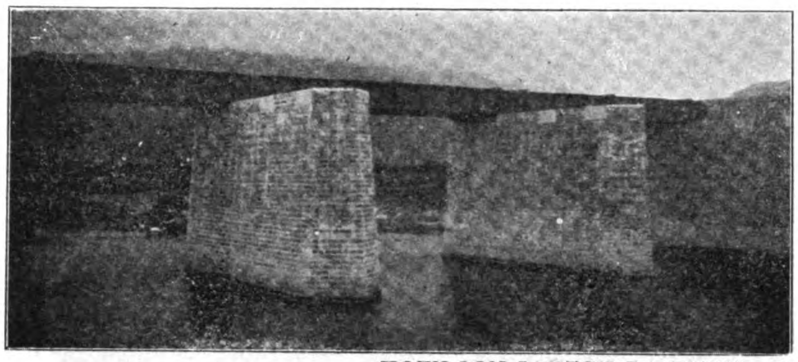


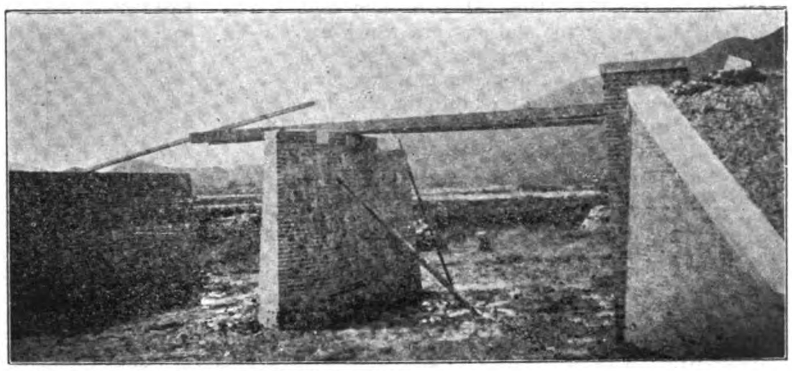
CAISSON WORK AT LO-FU FERRY



AT WORK ON A BIG CUTTING

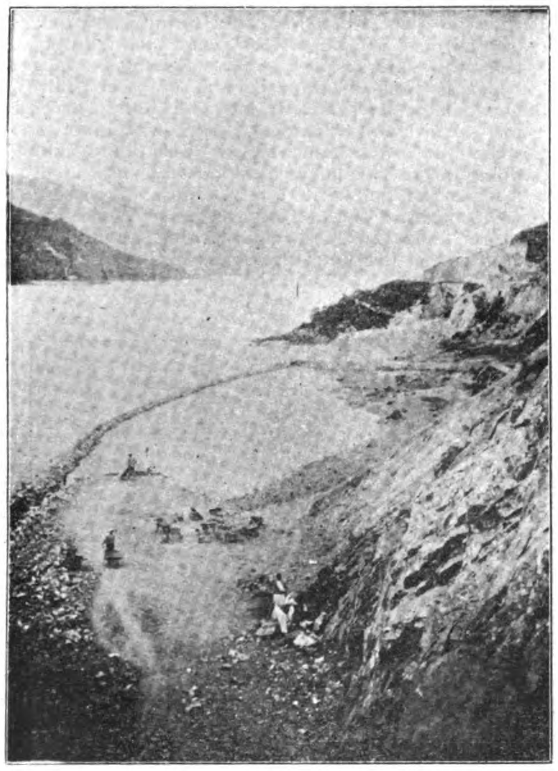
cess in these two items. Prior to 1908 no staff had been provided for accounting. Such accounting work as had required to be done had been done by the chief resident engineer and his staff. The third excess of which I spoke, $47,261 for bridges, arises in part from the increased size of Gascoigne Road bridge, which is due to the fact that it crosses the junction of two roads instead of crossing one of them at right angles. This increased cost is not shown in the 1907 estimates, because it was not at that time known what the cost of the iron work in England would be. The cost of the construction of this bridge has been let by contract to Messrs. Leigh and Orange as part of the agreement to which I will shortly allude. Under this head of bridges also a final decision has been taken regarding the bridge over the Taipo river, which has been a subject of much discussion, and it was finally settled by Mr. Barry. The situation in which it has been placed involves well foundations in the Taipo river, at considerably more cost than anticipated originally. It has been raised higher, owing to information which we received from the engineer of the Chinese section as regards flood levels in the Samchun valley and it has also been made with



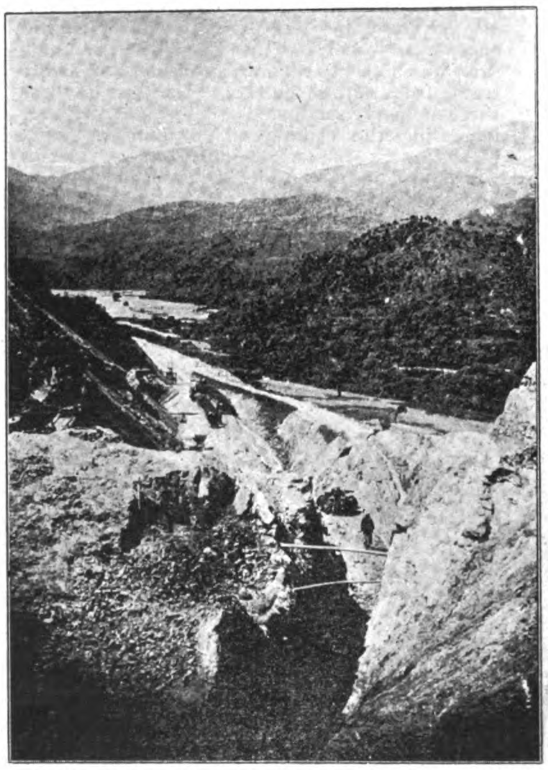


KOWLOON-CANTON RAILWAY.—STEEL GIRDER BRIDGE WITH BRICK PIERS

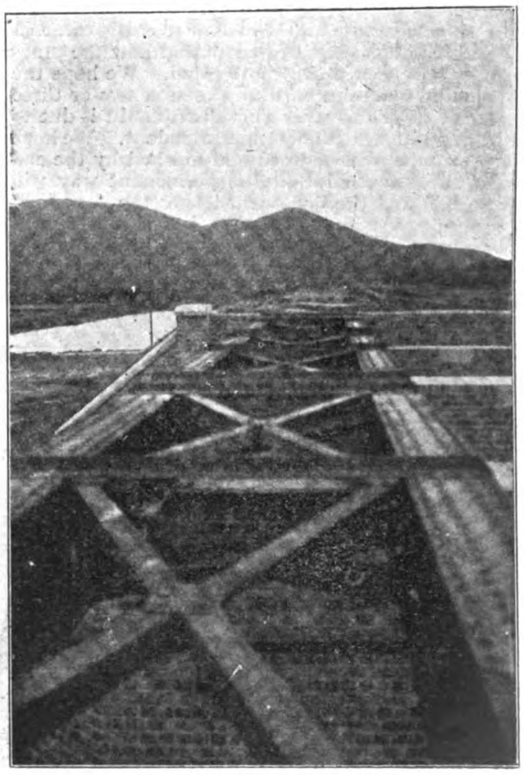
double girders for a double line. Council will desire to know whether I have any information to add to my reply of September last to a question asked me by the member who then represented the Chamber of Commerce in this Council as regards certain defective bridges. I said in reply that I had directed that an examination of the bridges in question should be held by the Director of Public Works and Mr. Williams, the engineer of the Naval Docks. Their report, together with the comments of the chief resident engineer, was forwarded to the consulting engineers and so far I have had no reply from them. The result was that Mr. A. J. Barry, who already contemplated a visit to the Far East, was directed to inspect the Kowloon-Canton Railway on behalf of Messrs. Wolfe, Barry and Co., and to report to them. His report has no doubt by this time reached them, and I await their authoritative letter before I can make any official statement to Council. But I am aware of the conclusions at which he arrived. Briefly, I can say he agreed with the eminent engineers who reported to me on that question; that he adversely criticized the principles on which one or more of the bridges had been constructed. The matter is a highly technical one, and according to the memorandum issued by the Colonial Office, technical responsibility for work undertaken by the consulting engineers rests upon them. Direct intervention by the Colonial Government is only justified in case of urgent necessity. If the Government believes the quality of the work to be unsatisfactory it will be beneficial for it to intervene. In my judgment such an occasion had arisen. Under the system upon which this railway is being constructed the consulting engineers are responsible for the conception and execution of the design in accordance with the intentions of the Government, and further responsible that the estimates are adhered to. The chief resident engineer is the nominee of the consulting engineers. He is responsible to them for the technical conduct of the work. I do not disguise from you that I have a misgiving that there will be some addition to the estimates before us in consequence of these defective bridges, but I trust and hope, with good cause, that the addition will not be a large one. You will see for yourselves what the chief resident engineer says on the subject in his report on page 4. I have dealt in considerable detail now with the items that involve excesses in the estimates. There remain those under which large savings are shown. Ballast and permanent way show an estimated saving of $51,700; rolling stock, $82,400. As regards the former you will find on page 5 a full explanation of the over estimate by the chief resident engineer, to which I have nothing to add. As regards the overestimate of the rolling stock, it is partly due to a decrease in home prices, and partly to the fact that less rolling stock than anticipated has been ordered. On Mr. Barry's advice the original order was somewhat reduced. The rolling stock is calculated to last till the end of 1911, but the resident engineer informs me that when the line is opened it will be insufficient, and will have to be augmented. We cannot, however, say exactly what quantity of rolling stock we shall require until the working agreement has been negotiated with the Chinese. I may add too, that the carriages will cost something less than half what had been estimated, for the amount placed on the estimates had been calculated on the basis of carriages for the Shanghai railway, and we find by adopting a less expensive model we can reduce the cost from about $2,000 per carriage to $1,900. As regards earthwork, under the estimate at the end of 1907, the chief resident engineer already anticipated a saving of over $140,504 on the estimate made in the previous June. Out of this saving, $35,000 will be allocated to a reduction of the bank in the big cutting at the head of Hunghom Bay. This cutting is about 210 feet deep, and the engineers consider that looking to the very pliable nature of the ground it is unsafe to allow the slip to stand without some further precautions to avoid landslips which may block the line for a period of several months. $110,000 is devoted to the prolongation of the sea wall from the storm water drain to Blackhead's Point. This had long been decided upon but was not included in the December estimates because no definite decision had been arrived at as to its exact location. It had originally been intended to make the wall in straight line to Blackhead's, but it was set back in order to effect a substantial saving by constructing the wall in shallower water. $40,000 are also required, which I hope will be met from the saving in earthwork, for cutting off the corner on Signal Hill, in order that the railway might obtain a proper curve in approaching Kowloon Station. I turn now to the more pleasant task of reporting the progress which has been made upon the railway during the past year. I think we can describe it as satisfactory on the whole with the exception,



VIEW FROM ABOVE S. PORTAL OF NO. 3 TUNNEL

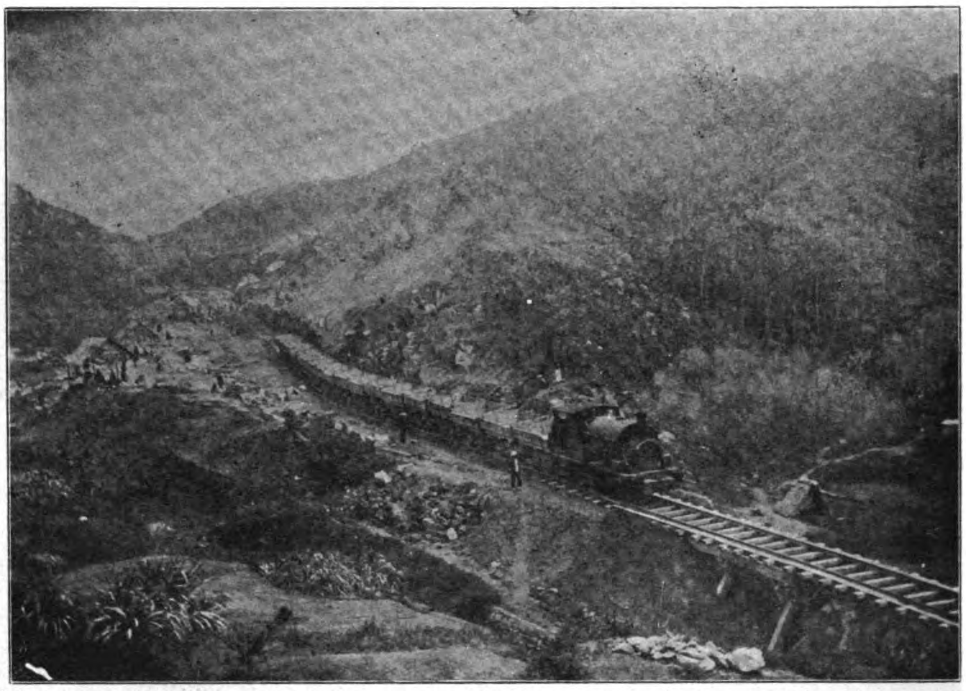


VIEW FROM TOP OF NO. 67 CUTTING WHICH IS BEING EXCAVATED IN 3 LIFTS, WITH 2 FT. LIGHT RAILWAY

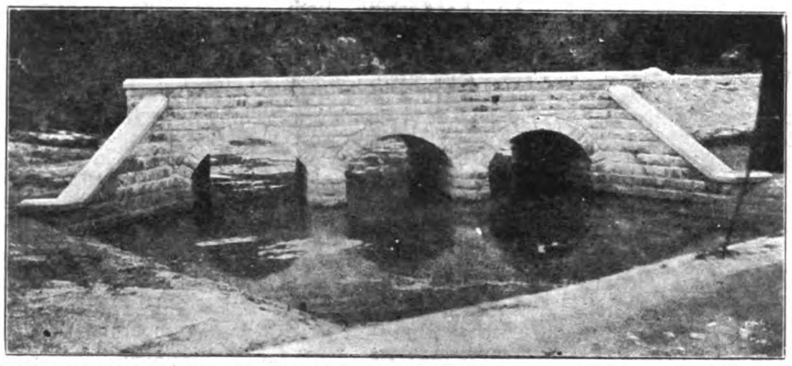


GIRDER BRIDGE

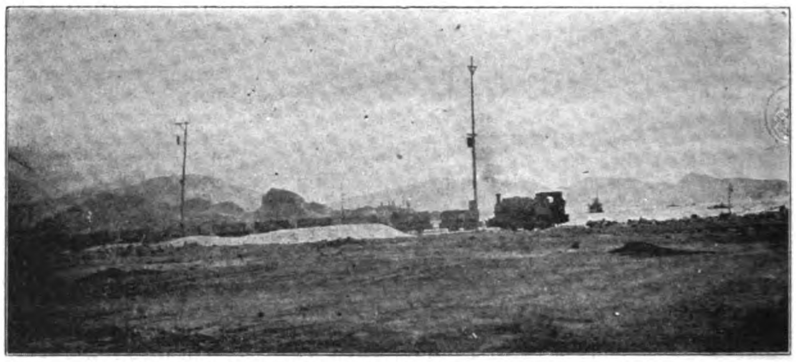
perhaps, of the big cutting at Hunghom and the reclamation for the station yard which are let to contract to Messrs. Leigh and Orange. As there was a prospect that the time for this would be much exceeded, we entered into negotiations with them in order to obtain the use of what is called the 'overland route' construction line which they have made and also in obtaining access to certain areas under reclamation in advance of the completion of the contract. By obtaining running powers over the construction line, we shall facilitate the opening of the railway at a very much earlier date than would otherwise have been possible. In return we have allowed them twelve months' extension of the time for the big cutting which, as I haye said, will not delay the opening of the railway. It will be opened over the overland route and they have consented that the penalties for exceeding the contract time shall be trebled. We have also given them two new contracts at rates which will be remunerative to them, viz. the Gascoigne Road bridge and the other in the neighbourhood of Yaumati Station. It will be possible to open the line before the big reclamations are completed. The tunnel progress has been good. On 31st December, 1907, 3,100 feet had been driven and 465 feet had been lined, and on 31st December last, 5,644 feet had been driven and 2,730 feet lined. The progress in 1907 was 40.27 feet per week. Last year it was 68.15, an increase of some 60 per cent. in spite of the fact that during the great part of 1907 we were working on four faces whereas in 1908 we were only working on two. I have already told you how greatly the cost per foot has been decreased and how the progress has been much more rapid. We hope the headings will meet within the next two or three days. For this work very great credit is due to Mr. Waite, the tunnel superintendent. We hope the tunnel will be lined and finished by the end of the year and that the permanent way will be laid and the line opened over the 'overland route' by May, 1910. We found it advisable to have a small flag station at Taipo market in order to attract some additional traffic, and a small station will also be built at Lo-fu ferry near the frontier. None of these items were included in the original estimates. I may also say that the jetty at Taipo will be lengthened so as to carry it into deep water, and by this we hope to acquire considerably more traffic from across the bay. The cost of these three items is small and will be met, without increasing the estimates, by abolishing high platforms at the small intermediate stations which are not considered necessary. After much discussion with Mr. Barry when he was here, it was decided that the small workshops which would be necessary should be placed on Crown land at the head of Hunghom Bay. It is considered that the building and plant will not cost more than $120,000, which is now included in the estimates. After much discussion it was also decided to locate the terminal station of land near Salisbury Road, where it would be near the various piers where passengers and baggage would be landed, and more central. It would leave the deep water anchorage free for ocean going steamers. This will involve some land resumption which I think well worth doing in order to acquire the advantages which I have just named. It is not possible to say what the cost of these resumptions will be because it will involve a considerable amount of adjustment between the Colonial Government and the railway accounts. The report of the



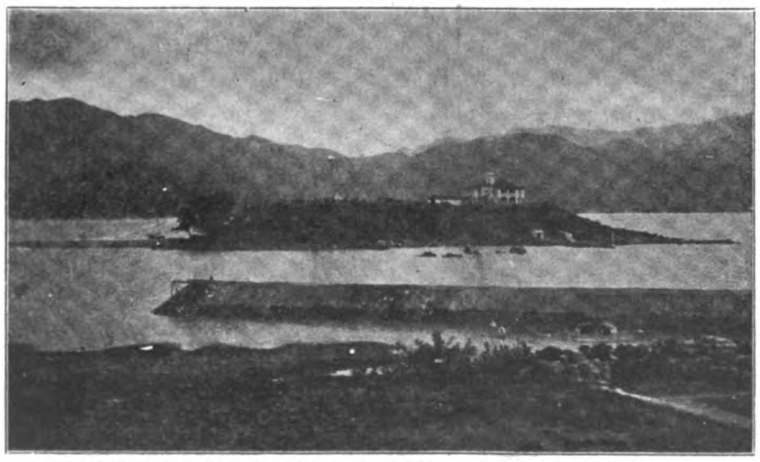
KOWLOON-CANTON RAILWAY.—TAKING THE TOP LIFT OFF THE CENTER OF CUTTING NO. I. FORMATION LEVEL IS ABOUT 30 FEET BELOW THE RAILS



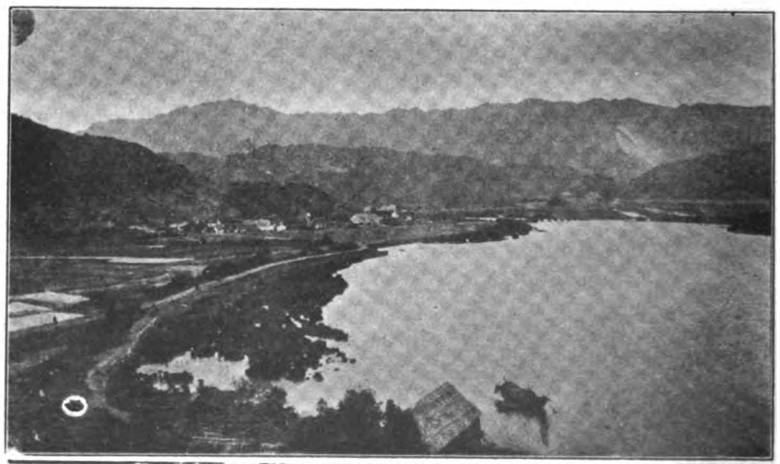
KOWLOON-CANTON RAILWAY.—CONCRETE BRIDGE, CUT STONE FACING



KOWLOON-CANTON RAILWAY.—CONSTRUCTION TRAIN

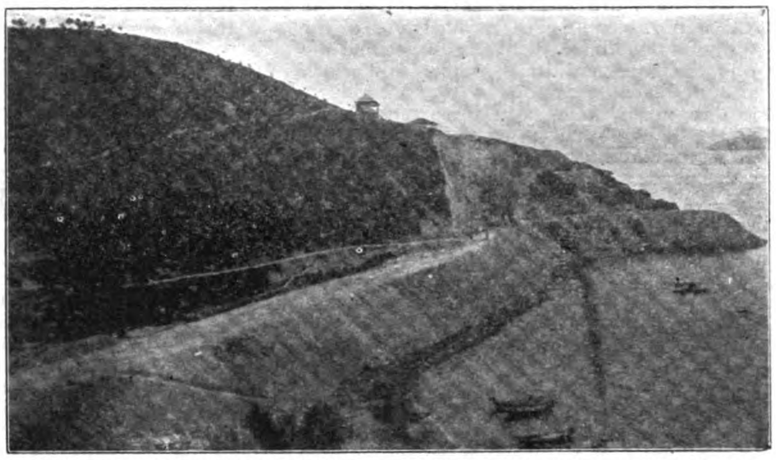


KOWLOON-CANTON RAILWAY.—LAND FILL AT TAIPO

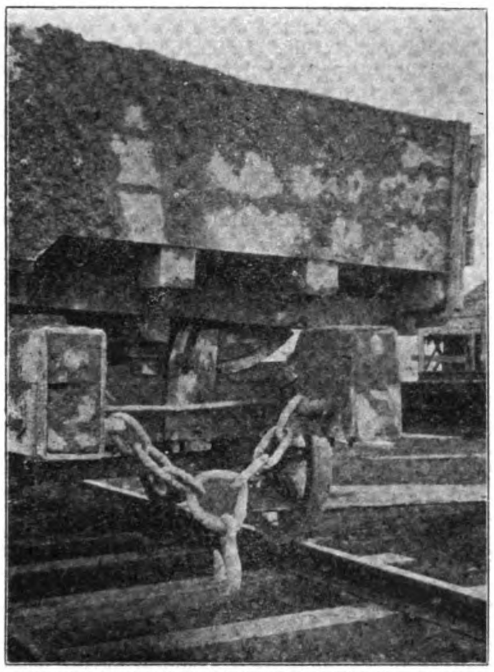


KOWLOON-CANTON RAILWAY.—TAIPO CITY

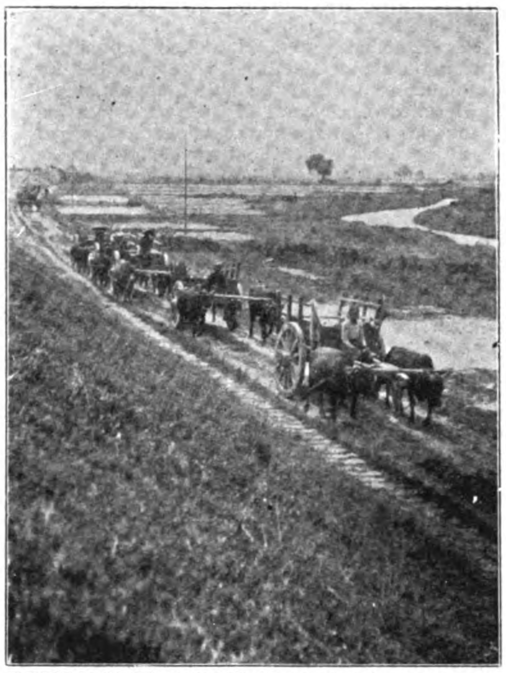
KOWLOON-CANTON RAILWAY.—CUT NEAR TAIPO



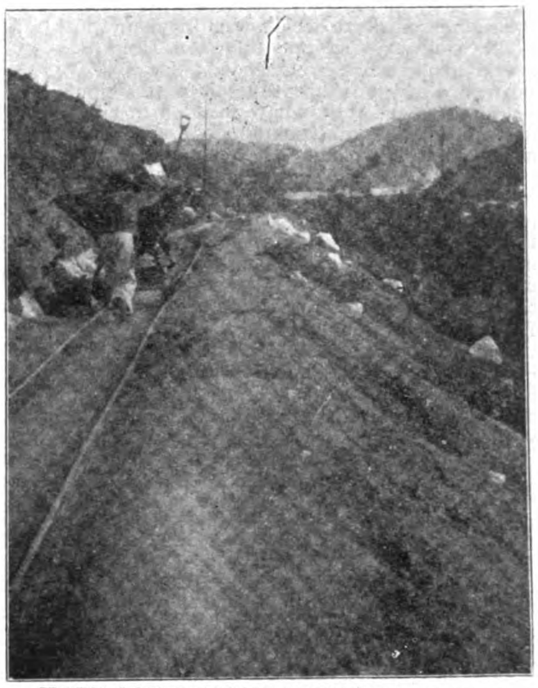
KOWLOON-CANTON RAILWAY.—SEASIDE EMBANKMENT AND CUTTING NEAR TAIPO



KOWLOON-CANTON RAILWAY.—CONSTRUCTION CAR



KOWLOON-CANTON RAILWAY.—HAULING BRICK BY OX CARTS

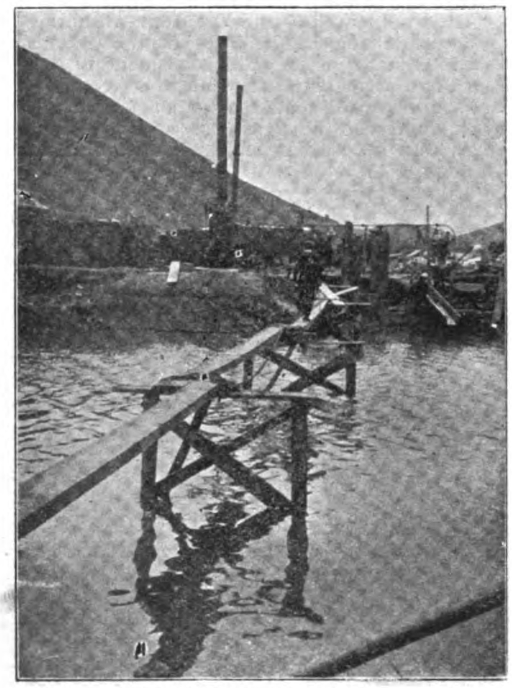


KOWLOON-CANTON RAILWAY.—COOLIE PUSHING CAR

medical officer is very satisfactory. Beri-beri, and dysentery at the tunnel have decreased by 50 per cent. This is due to better organization and to better methods. The number of coolies employed on the railway throughout the year per day was 3,244. Both sections—our section and the Chinese section, are now well advanced, and we hope before long to undertake negotiations for a joint working agreement. I think, gentlemen, that covers all points on which you are likely to feel interested in the work during the past year and the prospects in the future."

Following His Excellency's statement, there was much comment in the Hongkong press tending to intimate that mismanagement has been responsible for the doubling of the original estimates. In order to throw additional light on the subject and remove this impression the Hon. Murray Stewart, Chairman of the Committee of the China Association, addressed the following letter to the Editor of the *Hongkong Press*:

"SIR:—The Committee of the China Association conceive it to be in the public interest to endeavour to dissipate an erroneous impression that Hongkong is being called upon to pay for the Colonial section of the Kowloon-Canton Railway considerably more than the work is worth. The prevalence of this impression is indicated by certain Press comments upon His Excellency the Governor's speech in Council on the increased estimates. From the general tone of these it might almost be assumed that



KOWLOON CANTON RAILWAY.—CAISSON WORK FOR BRIDGE AT LO-FU FERRY

mismanagement had led to the doubling of the legitimate cost of construction.

"There appears to be a popular idea that the original estimate was for some 5 million dollars; that the work ought not to have cost much more; but that gradually, owing to a series of blunders, the figure has risen to 11 millions. This belief that the cost has been doubled by mismanagement has naturally let to severe criticism being directed against those responsible for the undertaking. I venture to submit that it is not borne out by the full circumstances of the case.

"The first important fact to note is that the estimate of 5 million dollars was a mere rough estimate made by Mr. Bruce on his original survey. The line beyond Shatin, as planned by him, was a single line throughout, to run along the edge of the sea shore from Lokloha to Taipo.

"The alignment which he proposed, and on which this rough estimate was based, had subsequently to be altered because the typhoon of September 1906 showed the shore edge to be unsafe. That typhoon was a revelation in many ways. It taught several lessons to others besides railway engineers, and there is no particular blame attaching to anyone for not having foreseen the possibilities of destruction reposing in the sheltered waters of Mirs Bay. If we can all now see that Mr. Bruce's original alignment was a mistake, we ought in fairness to remember it was at least excusable under the circumstances.

"The change in the alignment, removing the track out of reach of the sea, entailed much heavy cutting not contemplated by Mr. Bruce and the boring of three additional tunnels, of which that undertaken at Taipo is in itself a considerable enterprise. It is also important to remember that it was subsequently decided to build all bridge cuttings, and the three additional tunnels, wide enough to admit of a double track being laid, should the necessity for that hereafter arise. Mr. Bruce had not made provision for costly developments of this sort. It was not his business to do so. His business, as described by His Excellency the Governor in the Legislative Council on the 6th February, 1908, was 'to make a preliminary survey and to base upon it a preliminary estimate.' How rough an estimate it was may be gathered from His Excellency's comment upon it in the same speech, in relation to the cost of earthwork. He said 'it is difficult to know exactly what rates Mr. Bruce had calculated at, because no drawings or calculations of quantities rates were supplied with the estimate.' In justice to Mr. Bruce it should not be forgotten that the first and by far the most important duty which fell upon him was to decide upon the main route of the railway. At one time the Deep Bay route had been recommended. He had to determine which of three different routes should be adopted, and it stands to his credit that his decision on this vital point has been generally admitted to be sound.

"The first detailed and authoritative estimate made was that submitted by Mr. Eves in his report dated 4th February, 1908, and laid before the Legislative Council on the 22nd of the same month. If this estimate is compared with that made by Mr. Bruce, it will be seen that the increase is mainly due to five factors:

The estimates for land resumption was increased by	$1,186,038
For earthwork by	729,003
For tunnels by	578,555
For bridges by	620,927
While the expenditure on Plant, Rolling Stock, Salaries (for which Mr. Bruce had made no estimate at all) was estimated by Mr. Eves at	1,191,647
Total	$4,306,170

"The reasons for the increase in these items have already been alluded to, with the exception of that due to land resumptions in Kowloon, incidental to new and larger ideas of what will be required the terminus. Over and above this there remains an increase of roundly $500,000—accounted for by increases under the other subheads.

"With regard to the difference between Mr. Eves' estimate, dated 4th February, 1908, and his estimate dated the 9th March last, and laid before the Legislative Council at its last meeting, the excess of the latter over the former is just under $1,150,000. Of this nearly $1,000,000 is due to increased expenditure on Beacon Hill Tunnel. The net increase on the remaining items, as compared with Mr. Eves' first estimate is just under $150,000—not a very formidable sum. One reason for the increased cost of Beacon Hill tunnel is to be found in the varied character of the excavation, and another in the phenomenal hardness of the rock met with in parts of the hill, necessitating the use of specially heavy drills, and an enormously increased use of explosives.

"The fact that the estimates have been exceeded a common experience in all such undertakings should not be interpreted to mean that the work could have been executed for less. Unless this can be proved there is no justification for thinking that the Colony has so far suffered any loss except on paper.

"The members of my Committee have no valid reason to suppose that the cost of the actual work done is excessive, and, this being so, they protest against the advocacy of the belief that there has been 'gross mismanagement' in the construction of the British section of the Kowloon-Canton Railway."

On May 17, 1909, three days after the Governor's speech, the famous Beacon Hill tunnel was pierced, a triumph to British engineering and representing 28 months work against almost insurmountable obstacles.

The prospect is that the British Section of the Canton-Kowloon Railway will be completed by May, 1910, if not before that date. In discussing the 1910 budget, October 8th, His Excellency reported the completion of the lining, etc., of the big tunnel to the length of 4,935 feet and at the rate at which the work was proceeding he expected its completion about that time. This will be the signal for the opening of the railway to traffic. In the meantime the Chinese section will have been completed for over 30 miles from Canton.

THE CANTON-KOWLOON RAILWAY

(THE CHINESE SECTION.)

The following report on the progress of the work on this line, prepared by Mr. Frank Grove, the Chief Engineer, was submitted in April of this year Beyond this report there is little further to add, as progress has been slow, owing to the difficulty of securing rights of way. The surveying engineers have been repeatedly driven off, as the natives do not take kindly to the idea of the line through their fields, and disturbing the "Fengshui." Work is now practically at a standstill.

"The final agreement between the Chinese Government and the British and Chinese Corporation, who are building the railway, was signed on March 7, 1907.

"His Excellency Wei Han, being appointed managing director, facilities were afforded for the commencement, at the end of August, 1907, of a detailed survey and of the actual location of the line. Provisional arrangements had already been made by the British and Chinese Corporation, at the request of the Chinese authorities and the engineer-in-chief, for an adequate foreign staff; and from August 25, 1907, fully equipped survey parties were at work, the head office, temporarily established at Shameen, being under the direction of the managing director, the engineer-in-chief, and the chief accountant, under terms of the Loan Agreement.

"The Canton Terminal.—The Canton terminal has been established at Taishatow and is thus conveniently situated at the end of a roadway which will eventually pass throughout the entire length of the water frontage of Canton, east of Shameen. A considerable area of land has been acquired at Tungshan, rather more than one mile from Taishatow for the provision of permanent residences for the foreign and Chinese staff, and also for sheds and workshops. The terminal station at Taishatow will be a double-storeyed building providing full accommodation for the permanent general office. There will also be sufficient sidings and store sheds to deal with freight.

"A connexion with the Yueh-Han Railway will be made to the northward of the city. No difficulties will be encountered in the construction of this connecting link.

"The total length of the line from Taishatow to Samchun (on the frontier of the British leased territory) is 89 miles, considerably less than was anticipated at the time of a reconnaissance survey made some ten years ago. Allowing 22 miles for the British section, the total length thus becomes 111 miles from Canton to Kowloon.

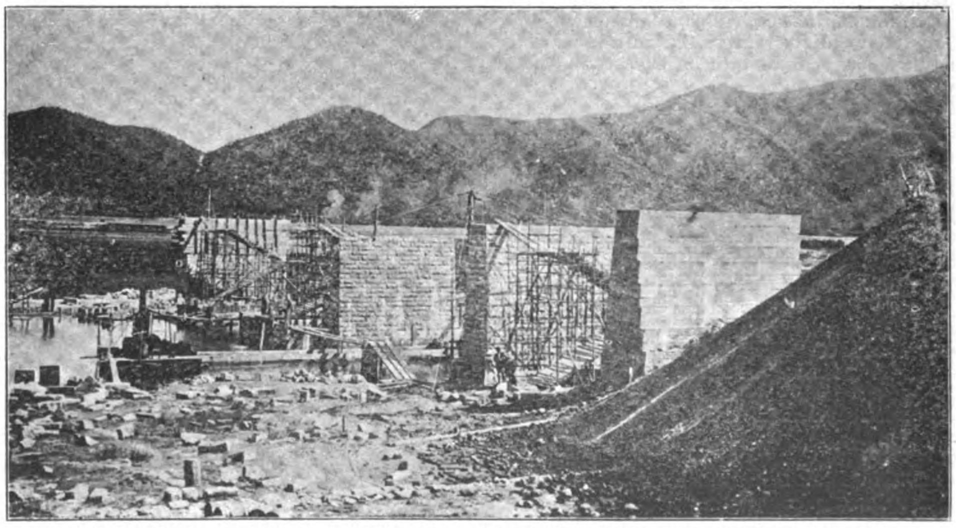
"The heaviest bridging occurs at the crossing of the East River Valley, and for some ten miles or more rails are carried at an average level of some 16 ft. above the level of the rice land. In a length of eight miles they had a total girder opening of some 3,000 feet, and during highest flood times the country became a huge lake with a depth of water averaging ten feet or more. Some heavy earthwork is encountered in the portion between Shekma and Samchun. Generally speaking, there are works of considerable magnitude in a large portion of the line, the proportion of major bridges being large for so short a railway.

"The route adopted offers every prospect of considerable traffic. From Canton to Sheklung there are many large villages, especially on the northern bank of the river, and the railway will provide, with its numerous stations and 'halts,' ready access to the Canton and Hongkong markets. A large quantity of lichees, sugar cane, oranges, and other fruits are grown annually in this district, which may be described as richly cultivated and prosperous. The commanding position of Sheklung on the East River and its trade as a distributing centre are well-known. The station and goods yard will be near the town, and considerable passenger and freight traffic is assured.

"South of Sheklung to Samchun a direct route has been obtained through a fine country, mountainous in many places, rather thinly populated, but fertile and capable of considerable development. The lower hills are inhabited by Hakkas, and large quantities of fruit, especially pineapples, and vegetables find their way from this district into the Canton and Hongkong markets.

"The survey was sufficiently far advanced for land purchasing operation to commence at one or two points of the line in December, 1907, and further sections of land plans were deposited in March, 1908. Land officers, however, found many difficulties to contend with, and it was not until July that considerable lengths of land were made over. Construction proper dated from July, 1908, thouh certain small sections of land were entered upon before that month. During succeeding months, land purchase made better progress, though the rapid extension of works was delayed, the present condition being that out of a total length of 89 miles about 50 miles are purchased and entered upon.

"In regard to this delay, it must be remembered that the rapid acquisition of large areas of land in the Kwangtung province presents a difficult task to Chinese officials, and care has



KOWLOON-CANTON RAILWAY.—BUILDING PIERS FOR BRIDGE NO. 33

to be taken to avoid serious disturbances, especially in dealing with the removal of graves, tombs, and temples. With the exception of some comparatively trivial affairs, it is a matter for congratulation that land purchase has proceeded to the extent indicated without great friction between officials and inhabitants, who are notorious in many districts for their exceptionally truculent and determined natures, and that the safety of foreign engineers under trying conditions has not caused greater anxiety.

"The construction of earthworks is at present proceeding over, or will shortly proceed over, the extent of land purchased, and fair progress is maintained. Bridge work is well in hand over considerable lengths. The works of the most importance and likely to entail the greatest delay to a through connexion are the large bridges at the crossing of the East River Valley. A satisfactory start is being made on foundation work, and there is no reason to anticipate greater delay in the opening of the line for through traffic than the nature of the work naturally involves. The rate of construction of the heavy earthworks and culverts on part of the line south of Shek-lung, where water transport facilities are absent, is necessarily not so fast as it would be in an open and easily approached country-side.

"A careful estimate anticipates the opening to traffic of a 30 miles' section from Canton outwards in March, 1910, and a through connexion with Kowloon on or about July 1, 1911.

"British merchants in Hongkong and in Southern China generally will then have the satisfaction of seeing consummated a scheme long and ardently advocated. As far back as 1898 the necessary concession was obtained, together with four other railway concessions, from the Chinese Government by Sir Claude MacDonald, just after the Belgian syndicate were given leave to build the Peking-Hankow line. But the project hung fire. It was only after the construction of the Kowloon part of the line under purely British auspices was well under way that the British and Chinese Corporation, to whom the concession had been made, tried to clinch matters with the Waiwupu. Long negotiations followed, and, as mentioned above, the document that gave life to the agreement concluded in principle in 1898 was not signed until 1907.

"The general financial terms under which the railway is being constructed are similar to those stipulated for the Shanghai-Nanking Railway. They provide for the issue of a sterling loan of £1,500,000, bearing interest at 5 per cent. The loan is guaranteed by the Chinese Government, and secured on the railway to be built. The administration of the railway is vested in 'a Chinese managing director (appointed by the Viceroy), with whom are associated a British engineer-in-chief and a British chief accountant.'

"The depot will be at Tung Shang, a mile away from the terminus and the main station. At Shekwaitong the line will connect with the Hankow railway. There will be three lines from the No. 1 bridge—a main line and two sidings. The platform itself will be 800 ft. long by 30 ft. wide.

"The station building—the foundation stone of which was laid by H. E. the Viceroy—is of reinforced cement concrete, with brick facings. The walls, floors, columns, roofs, and partitions are all of reinforced concrete with Green Island Cement. The size of the building is about 170 ft. by 60 ft. and will be of three storeys.

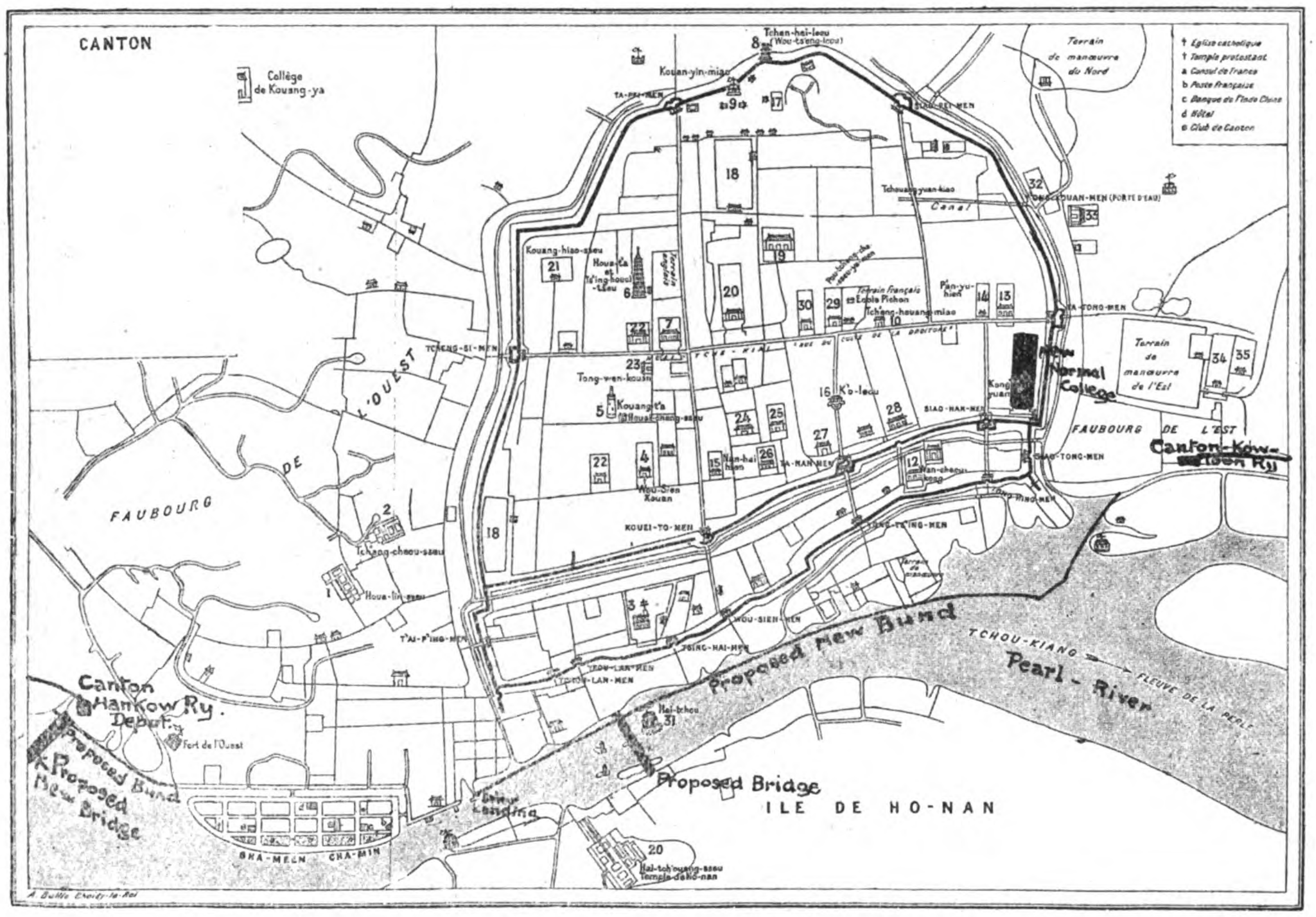
"The ground floor contains the main entrance, about 60 ft. by 40 ft., leading directly on to the platform. Here there will be the booking, telegraph, traffic, and station master's offices, together with the necessary railways and enclosures for the different classes of passengers. There are the mandarin waiting rooms, refreshment rooms, traffic and accounts department, traffic manager's office, ladies' waiting room, a large parcels' office—40 by 20 ft. and the usual lavatory accommodation. There will be re-enforced concrete stairs on either side of the building leading to the first floor, on which are the managing director's and secretary's offices, as well as for their clerks, the accountant and assistant accountant's department, offices for the manager and engineer in chief, the maintenance engineer, a general drawing and drafting room, together with a large light area for the staircase of iron in the centre. On the second floor is a big dining room, mess room, kitchens, printing and drawing room for plans, wash rooms for the printing, etc., with a promenade outside. The whole building is covered with a flat concrete roof of re-enforced malthoid.

"The building is severely plain so as to be in keeping with most railway structures, and will be relieved with Doric columns. The fittings throughout are of teak wood, with plate glass windows. The hardware necessary will be imported.

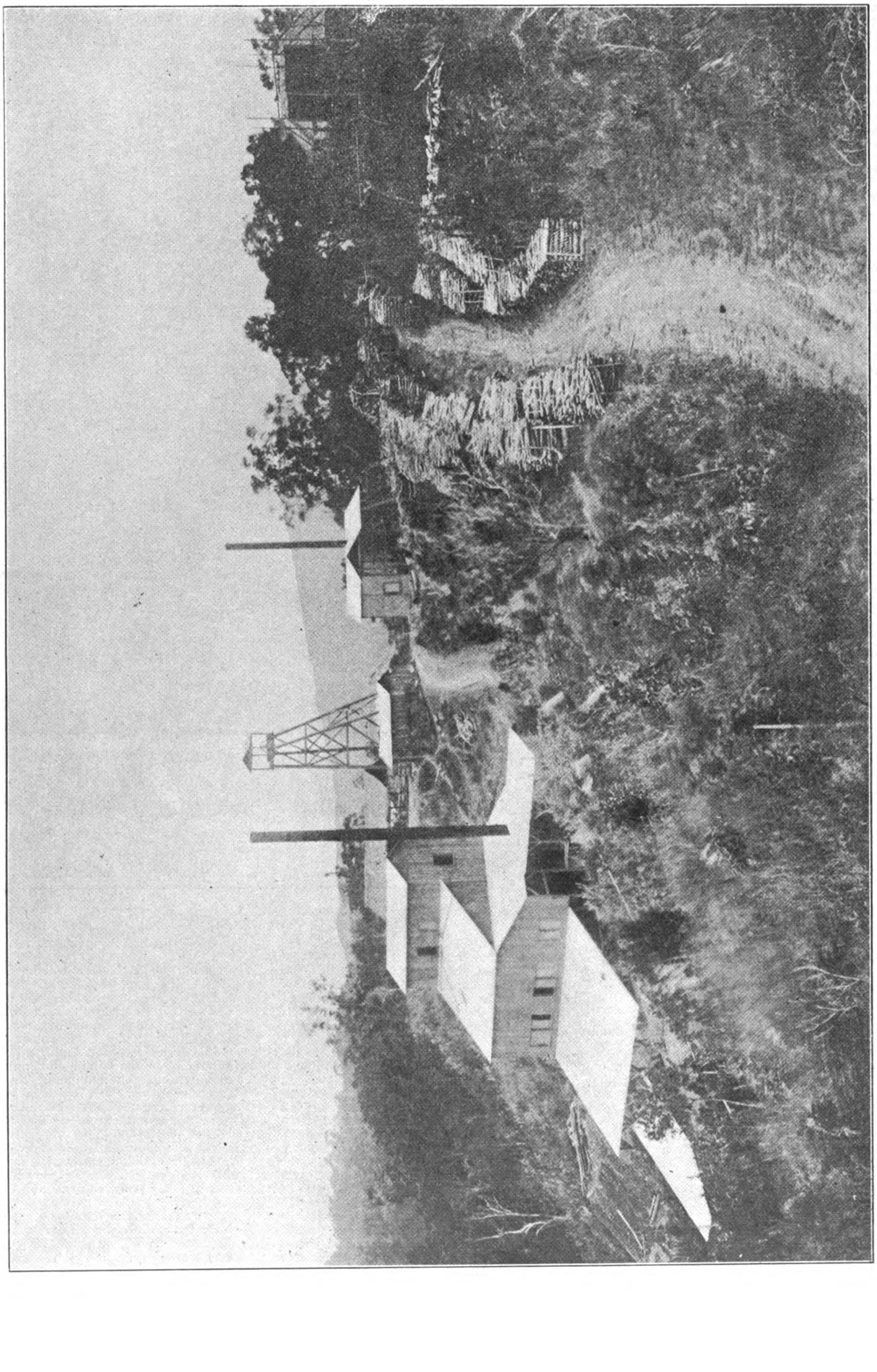
"A great feature of the place is the small curtain walls of re-enforced concrete, which thus economise space. The building will have its own water supply and electric light installation, with arc lamps on the platform. Messrs. Purnell and Paget are the architects, and Hop Woo are the contractors. The foundations—which are of re-enforced cement concrete on piles—were started in January, 1909, and it is hoped to finish by contract time in March, 1910.

"The whole of the floor will be covered with Chinese and imported English tiles, and, we need hardly say, the building will be fire-proof. It is worthy of note also that the bricks are of a new kind, being Kwangtung bricks, of local manufacture. They have a nice glaze, have stood a severe test, and supply a long felt want in building construction in Canton and the neighborhood. They are made by the Chinese Government, on the Honam side, under the superintendence of Taotai Lu. The cost of the Amoy bricks—which up to now have been in demand—made building very costly, as the freight was no mean figure. Now that a good local brick is in the market, it is felt that not only will satisfaction be guaranteed but an incentive may be given to building construction and therefore to the extension of a local industry.

"On the recommendation of the Chief Engineer the contract for all the rails for this line has been placed with the Hanyang Iron & Steel Works."



MAP OF CANTON SHOWING RAILWAY TERMINUS



SAN MAURICIO MINES

One of the most important undertakings in Philippine quartz mining has just reached the stage of assured success. This is the operation of the "San Mauricio" mine located at Mambulao in the Province of Ambos Camarines on the Pacific coast of the Island of Luzon. Here there is a fine deep-water harbor in which large vessels can anchor within a quarter of a mile of the shore. The mine shaft is two-thirds of a mile from tide-water. The properties have an area of about 270 acres.

A twenty-stamp mill from the Traylor Manufacturing Company is practically completed and will be running in the early part of the coming year. It is the largest crushing plant in the Philippine Islands. The method of handling the ore and the extraction of values is of particular interest. After the ore is broken down into chutes, it is run into cars and trammed to the shaft which is equipped with a sixty-five horse-power hoist of the Lidgerwood type. It is then hoisted to the surface and trammed from there to the grizzly and crusher floor of the mill building, the "fines" going through the grizzly and the "oversize" going to the crusher where they are reduced to an inch and a half ring. From this point all the ore is handled by gravity. After leaving the crusher it enters the bin which has a capacity of 150 tons. From the bin it is introduced to automatic feeders that feed the ore to the stamps, of which there are four batteries of five each with a weight of 1,050 lbs. per stamp. It is there crushed so that it will pass through a 30-mesh screen. Before the ore leaves the batteries a certain amount of the free values are amalgamated inside of the batteries. The rest of the free gold is caught on the copper plates in front of the screen. The pulp from the copper plates is run into launders which carry it to the classifier, where the pulp is classified into three different sizes and distributed from there by launders to the six Traylor concentrating tables on the first concentrating floor. The "middlings" from these six tables are conducted to the lower concentrating floor which contains two tables and are re-concentrated there. The sands or tailings are then run off on to a dump and stacked there for future disposal.

The average value of the ore as reported upon by five engineers, H. W. L. Way, Carnegie Williams, E. Voigt, Charles Schneider and Washington B. Vanderlip, is one ounce and sixteen grains per ton. The cost of handling this ore, that is, mining, milling, concentrating, shipping of concentrates, smelting charges and development work on the mine, should not be over five dollars per ton of ore handled. It is expected that the mill will crush about eighty tons per day.

The plant includes a well equipped assay office under a competent man who is devoting his time to work out a method of treatment whereby the values may be recovered without smelting. The superintendent in charge is Mr. D. E. Blake, an engineer well-known in the mining world, in whom the officers of the company place entire confidence.

Philippine Exploration Company.—The San Mauricio mine is controlled by the Philippine Exploration Company, incorporated in the United States in 1908. Its head office is at No. 97 Water Street, New York City, with a branch office at No. 32 Plaza Moraga, Manila.

The officers of the company are: Mr. F. H. Henry, President; Mr. James Cochran, Vice-President; Mr. Vivian L. Outerbridge, Secretary-Treasurer; Mr. A. Heise, General Manager. The other directors are Mr. Howard Gilbert and Mr. Halsey R. Carpenter.

The object of this company is to undertake the financing of promising mining properties, either quartz or placer. Its method of operation is to take over a property from the owners under a contract to develop it and, in case the development work should justify it, to install machinery.

When a completely equipped plant is at work, the Exploration Company turns it over along with the mines to an operating company organized to acquire and work them and retires from the active management of the property, but retains as its share a control of the stock of such operating company.

With the "San Mauricio" off its hands the Exploration Company is starting in to develop two other promising properties in the same district, one of which is placer and the other quartz.

Batobalani Dredging Group.—This property comprises 760 acres and is situated on the Malaguit River in the well-known Paracale mining district. It is about eight (8) miles distant from the San Mauricio mine. The lower end of the group is just at the head of tide-water at a distance of about six miles from the sea. Materials for the building of dredges can easily be lightered or floated to this point.

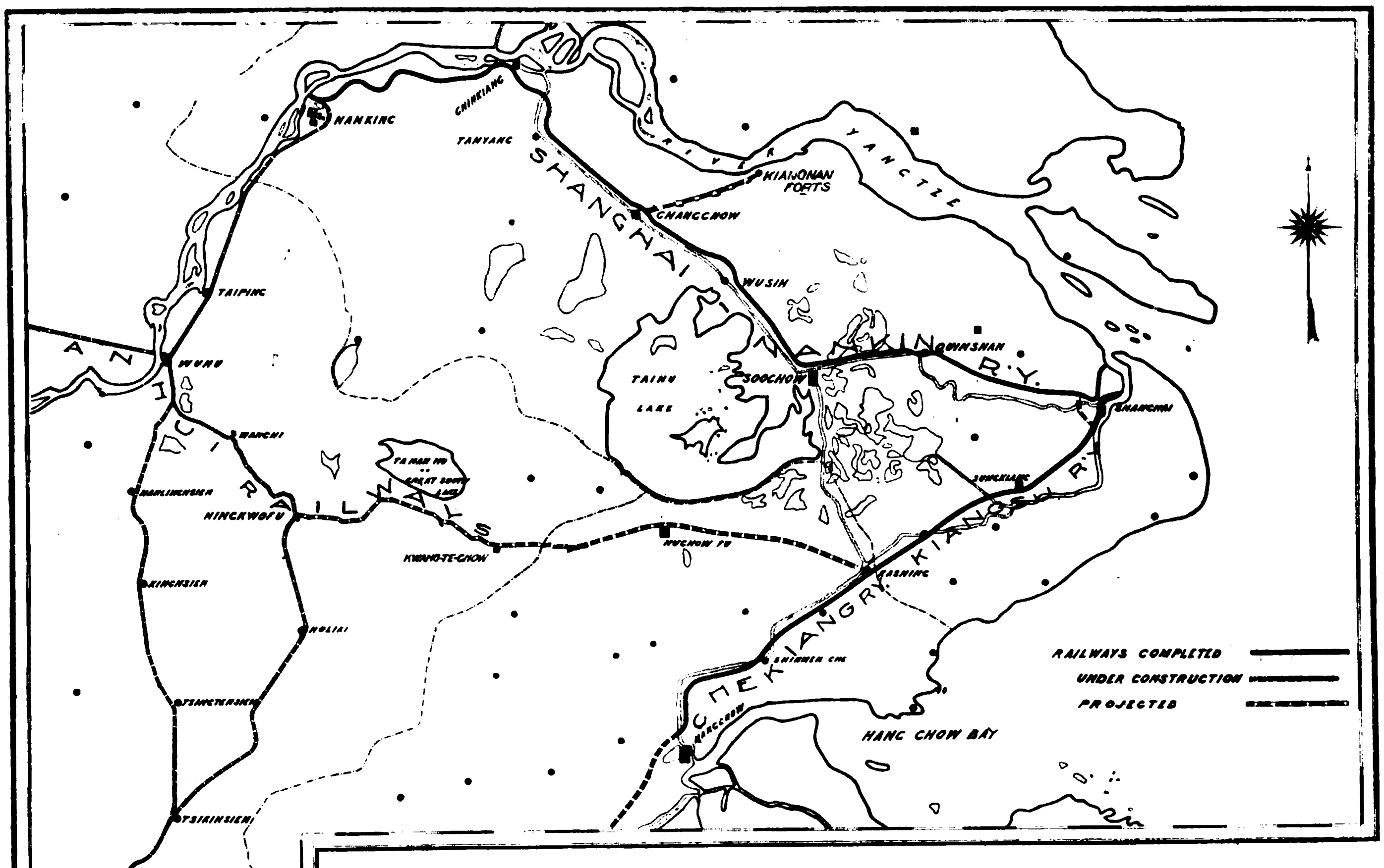
From 260 boring tests made on this ground the average per cubic yard of the dredgeable area is given as twenty-four cents, United States currency. The tests were made with a hand boring machine and it is the consensus of opinion of most mining men that this apparatus will not save the values in the sample taken by one-third, which means that it would be safe to figure upwards of thirty cents per cubic yard. The aforementioned tests show the overburden to be handled to range from two to seven feet and the gravel or "wash" from thirteen to twenty-one feet. This fixes the maximum depth of the dredgeable ground at twenty-eight feet and the minimum depth at fifteen feet, which are ideal conditions for dredging. The entire area has not been proven up to date, but tests are being pushed as fast as possible and a dredge will be ordered in the near future. The Exploration Company has bonded this property for eighteen months.

Robinson Group.—The Robinson Group is a tract of about 850 acres of mineral-bearing ground which forms an ell around the San Mauricio Group, virtually making both properties one.

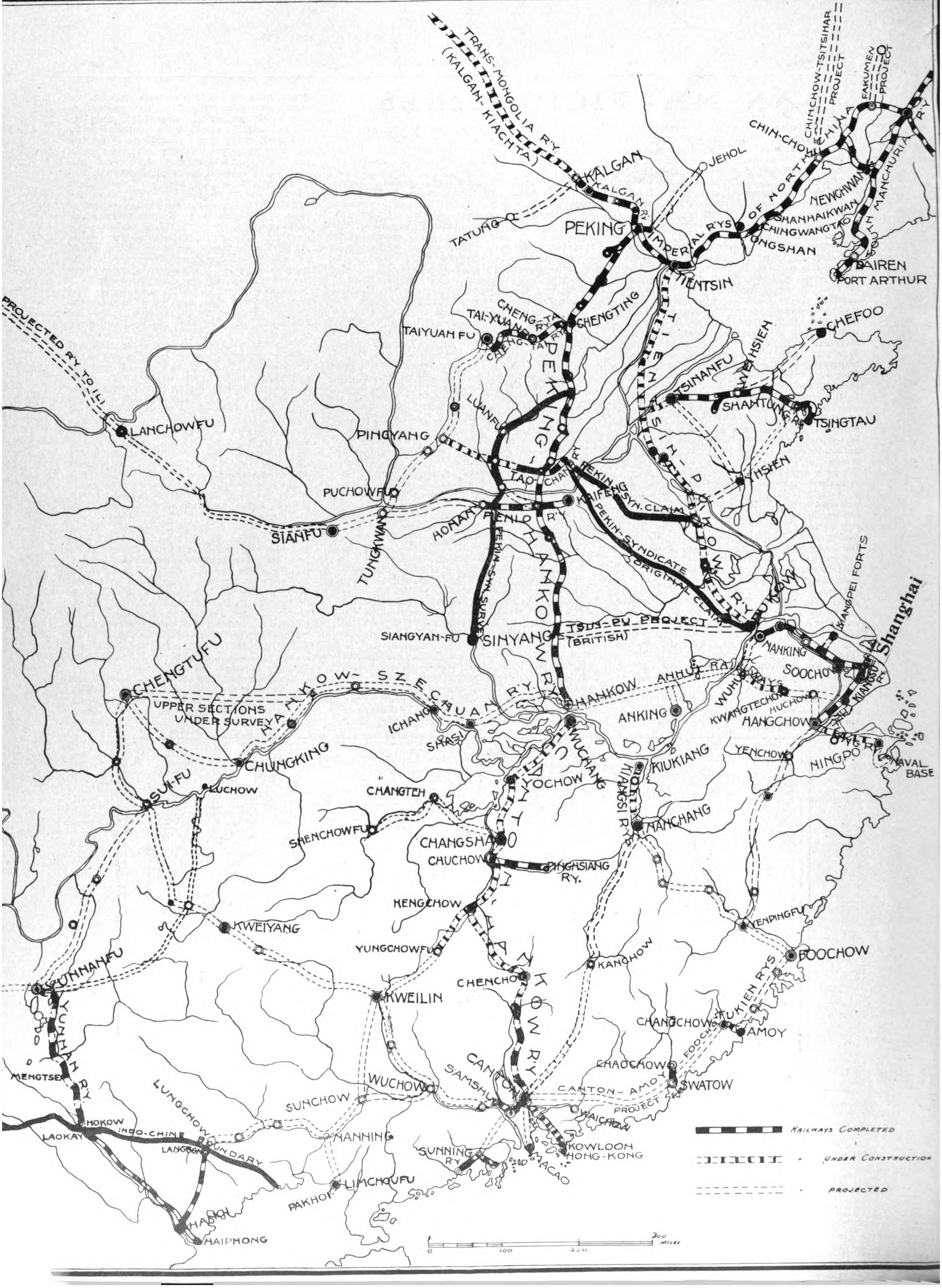
There have been numerous shafts sunk and adits driven by native miners in the past on the Robinson Group, the lines of old workings extending parallel from the Northeast to the Southwest all over the group. This property is now being surveyed and active development will start on the same at the beginning of the coming year. The Exploration Company has a three year working bond on this group, guaranteeing to spend a fixed sum monthly and at the end of the lease to install such machinery as the development work at that time justifies. This property has the making of some very large mines. It is as yet only in the "prospect" stage, but from all surface indications it will justify the expenditure of considerable time and money.

Mr. A. Heise, the general manager, and one of the directors of the company, sailed from Manila recently for Shanghai where great interest is being taken in Philippine mining development. While nothing has been given out as to his purpose there, it is believed that some of the leading Shanghai capitalists may become interested in the different promising enterprises of the Exploration Company. It is understood that all the necessary capital for the development of the properties referred to is available in New York but Mr. Heise, it is said, is anxious to interest local Far Eastern capital as much as possible in these ventures.

Mr. Heise has been the most successful and conservative promoter of Philippine mining, and there is little doubt but that Shanghai capitalists will be impressed with the opportunity and take a "look see" at these properties.



KIANGSU CHEKIANG RAILWAYS



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SUPPLEMENT TO
THE FAR EASTERN REVIEW

China's
Foreign Railway Agreements

NOVEMBER, 1909.

GREAT BRITAIN

FINAL AGREEMENT BETWEEN SHENG KUNG-PAO, DIRECTOR-GENERAL OF THE IMPERIAL CHINESE RAILWAY ADMINISTRATION, AND THE BRITISH AND CHINESE CORPORATION, LIMITED, FOR THE ACQUISITION OF A LOAN FOR THE CONSTRUCTION OF A RAILWAY FROM SHANGHAI TO NANKING.

This Agreement is made the 15th day of the Intercalary month of the 29th year of Kwang-Hsu, corresponding to the 9th day of July, 1903, at Shanghai, and the Contracting Parties are:—

The Director-General of the Imperial Railway Administration, Sheng Kung-Pao (to be called hereafter Director-General), acting under authority of an Imperial Decree, of the one part, and Messrs. Jardine, Matheson & Company, and the Hong Kong and Shanghai Banking Corporation, representing as Joint Agents the British and Chinese Corporation Limited (hereinafter called the Corporation), of the other part.

Whereas, on the twenty-third day of the Intercalary third month of the twenty-fourth year of Kwang-Hsu, being the thirteenth day of May, 1898, a preliminary Agreement was signed at Shanghai between the Director-General of the Chinese Imperial Railway Administration, Sheng, acting under instructions from the Tsungli Yamen, and the British firm of Jardine, Matheson & Company, for themselves and on behalf of the Hong Kong and Shanghai Banking Corporation, representing as Joint Agents a British Syndicate, and

Whereas, on the 12th day of December 1902, an Imperial Decree was issued in the following terms:—"In view of the important considerations connected with the construction of railways in various parts, a Decree has already been issued apportioning the responsibility for the duties connected therewith. Hereafter the accounts of receipts and disbursements are to be prepared by Sheng Hsuan Huai, and communicated by him for the examination of the High Authorities of the provinces through which the railways pass, and subsequently for submission in a joint memorial to the Throne. When a line of railway has been surveyed, before the work may be begun, plans and specifications must be communicated to the High Authorities above-mentioned, who will depute an official to ascertain that there are no objections. Should Sheng Hsuan Huai enter into any agreement with a foreign Syndicate he must before signing such Agreement obtain the assent of the High Provincial Authorities, and a copy of such Agreement must be submitted to the Throne in a joint memorial," and

Whereas, on further consideration it has been found necessary to make certain alterations in the aforesaid preliminary Agreement, now therefore it is agreed that this final Agreement shall be substituted for the preliminary Agreement above referred to.

Article 1.—The Corporation agrees to issue on behalf of the Railway Administration, a sterling loan (hereinafter referred to as the loan) for an amount not exceeding £3,250,000 sterling, on the terms and conditions hereinafter contained. Imperial Chinese Government bonds are to be issued for the entire sum, similar to the bonds of the Imperial Railways of North China, with the Railway as first mortgage security therefor. The loan shall be issued in two or more parts, and each series is to be in such amount as the Engineer-in-Chief may determine under direction of the Director-General and the Corporation, in accordance with the extent of the work to be undertaken, so as to prevent the Chinese Government from suffering undue loss of interest. The price agreed upon for the loan is 90 per cent. of the nominal value, and any loss or profit in selling these bonds to the public shall be borne by or go to the Corporation. The interest on the bonds shall be at the rate of 5 per cent. per annum on their nominal value, and be payable half-yearly.

The duration of the loan is fixed at fifty years, commencing from the date of the ratification of this Agreement, but no interest will be paid on any bonds which may be redeemed or cancelled under the terms hereinafter mentioned after the redemption or cancellation thereof.

On the face of each of these bonds shall be expressed the value thereof in the sum of £100, or in such different amounts as the Chinese Minister in London in consultation with the Corporation may sanction.

If any of the bonds or net profit certificates hereinafter mentioned are lost or destroyed a reissue of any thereof is to be made in the amounts respectively called for by such lost or destroyed bonds or certificates, but proper proof of the loss or destruction must be given in the usual form to the Corporation and the Chinese Minister in London for examination and record, and the requisite guarantee is to be obtained by the Corporation from the respective claimants concerned.

Article 2.—The proceeds of the loan are to be used in the construction and equipment of the railway, and in paying interest on the loan during the course of construction.

The Corporation shall build and equip as economically as possible in accordance with the best modern system, the line from Shanghai to Nanking, it being hereby agreed that the Chinese Administration shall secure the necessary land for a double line of railway for the whole distance, as well as other facilities for the purposes of the construction and working of the line.

When the line is completed, if there is a surplus from the sale of bonds, the said surplus shall be at the disposal of the Chinese Government for redeeming the bonds, or to be placed through the Director-General in a bank on deposit for the purpose of paying interest on the loan or for developing business beneficial to the Shanghai-Nanking Railway, all to be arranged at the proper time between the Director-General and the Corporation. Should Chinese themselves build branch lines to act as feeders to this railway, it is understood that the system of construction and equipment thereof shall be adopted by such branch lines in order to facilitate through connection.

In all matters relating to the construction and administration of the railway by the officials of the British and Chinese Corporation it is expressly agreed that particular heed shall be paid to the opinions, habits, and ideas of the Chinese people, and that when practicable Chinese shall be employed as far as possible by the Board of Commissioners in positions of trust and responsibility in connection with the railway.

In regard to the earthwork or such other work as Chinese are competent to perform, contracts shall be entered into for such work with Chinese under the sanction of the Director-General or his deputy, said work itself to be in accordance with plans and specifications of the Engineer-in-Chief, and under his supervision.

In the further and final survey detailed plans and estimates of cost, whether of the respective sections of the main line or of any extensions, branches, or alterations of the same, are to be submitted to the Board of Commissioners for the approval of the Director-General.

Article 3.—The loan shall be secured by mortgage now entered into in equity, and shall as soon as possible hereafter be secured by a specific and legal first mortgage in favor of the Corporation upon the railway now completed between Woosung and Shanghai, and also on all lands, materials, rolling-stock, buildings, property, and premises of every description purchased or to be purchased by the railways herein referred to, and on the last-mentioned railways themselves as and when constructed, and on the revenue of all descriptions derivable therefrom.

The provisions of this Article in respect of the mortgage are to be construed and treated as of the same purport and effect as a mortgage customarily executed and delivered in England to a trustee for the purpose of securing loans and bond issues upon railway properties.

Article 4.—According to Article 1 of this Agreement it is provided that the loan is to be paid in instalments from time to time as the work proceeds. It is hereby agreed that within eight months after this Agreement is officially signed and ratified the Corporation shall pay the first instalment to meet the requirements for the work, whether the proceeds come from the sale or hypothecation of the bonds or from advances made, provided the appropriate series of bonds for the required instalment of such loan shall have been executed and delivered. If after the expiration of twelve months from the date of the ratification hereof the work of construction shall not have been begun on the main line, this Agreement is to become null and void.

Of the proceeds realized from the sale of the bonds, after deducting so much of them as may be required to be kept in England for the purchase of materials and payments of contracts there, such amounts as may be estimated and certified to by the Engineer-in-Chief to the Board of Commissioners hereafter mentioned as being actually required for the construction of any particular section of the main line shall be ordered by the Board of Commissioners after consideration to be transferred to Shanghai to be kept in the Hongkong and Shanghai Bank, or such bank or banks as may be mutually agreed upon, and placed to the credit of the construction account of the Railway Administration for the exclusive purpose of building such section or sections of the railway herein provided for under the supervision of the Board of Commissioners.

On each occasion of a remittance being made to China the amount realized in sycee will be reported to the Director-General, and any portion which may not be required shall be placed at interest. Similarly the balance in England shall be placed at interest.

The accounts of the money spent from time to time in England, and of the money transferred to the credit of the construction and other accounts for use in China, are to be submitted quarterly to the Board of Commissioners for examination and for report to the Director-General for the information of the Wai-Wu-Pu and for his further report to the Board of Revenue and the Bureau of Mines for record therein, after such accounts have been approved and signed by him.

Article 5.—The dates of the bonds mentioned in Article 1, and of the certificates mentioned in Article 12 of this Agreement, shall be of even date with this Agreement. Interest shall begin to run upon the bonds only from the date of their respective sales and deliveries to the public, and due adjustment of such interest will then be made with respective purchasers for any fractional period of time thereafter covered by the coupon next maturing. For the purpose of such adjustment the then current interest may be reckoned from the nearest first or fifteenth day of the month in which the sale and delivery occur as the case may be.

Coupons which have theretofore matured are to be cancelled and delivered to the Chinese Minister in London for trasmission to the Railway Administration.

As to the form of bond, it is to be agreed upon by the Director-General or by the Chinese Minister in London and the British and Chinese Corporation at the same time as this Agreement is signed, but if hereafter the money markets in London or other countries require the modification of the form of the bond, except in anything that affects the amount of the loan, the rate of interest, the period of the loan, and the liability of the Chinese Government, which are not to be touched at all, such slight modifications may be made to meet the views of the money markets by the Corporation in consultation with the Chinese Minister in London.

Any modifications are to be reported at once by the Corporation to the Director-General for the approval of the Wai-Wu-Pu.

The bonds and the net profit certificates referred to in Article 12 are to be engraved entirely in the English language, and shall bear the fac-simile of the signature of the Director-General and of his seal of office, in order to dispense with the necessity of signing them all in person. But the Chinese Minister in London is to sign each of the bonds and certificates and put his seal thereon as required, as a proof that the issue and sale of these bonds as well as the certificates are duly authorized and binding upon the Chinese Government.

Such bonds or net profit certificates are to be numbered consecutively, and as many bonds or certificates as may be needed are to be properly engraved under the supervision of the Corporation.

The loan bonds herein referred to, as soon as they are engraved and signed and sealed by the Chinese Minister in London as hereinbefore provided, are to be countersigned by the Corporation.

The Chinese Minister in London and the Corporation are to agree upon the selection of a proper safe deposit in London to keep these bonds, subject to the needs and requirements of the Corporation, so as to enable it during the progress of the construction to sell these bonds after having been signed and sealed by the Chinese Minister in London in separate lots from time to time, or hypothecate the same in order to raise money to pay for the construction of the railway or any of the branch lines as may have been approved by the Director-General.

When the second and subsequent issues are about to be made, if the Corporation receives sufficient notice from the Director-General that subjects of China wish to take up a portion of the issue, the necessary amount of bonds will be set aside for Chinese subscribers, to whom the bonds will be sold at the same price and on the same conditions as those sold to the public in London. If possible, arrangements will be made for issuing these bonds, and paying the interest thereon, in China, at the current rate of the day.

The amount of the loan is fixed at £3,250,000 for the purpose of constructing and equipping the main line of the Shanghai-Nanking Railway, in accordance with the survey and estimates of the Engineer-in-Chief as approved by the Director-General.

The first issue of bonds shall be made in London in such amount as may seem necessary for the work to be undertaken, but before the second or subsequent issues are made the Corporation shall give sufficient notice to the Chinese Minister in London, in order that if the Chinese Government has funds at its disposal at the time it may place such funds to the credit of the construction account of the Chinese Railway Administration, to be used in the same manner as the proceeds of the loan, and in that event the total amount of the loan of £3,250,000 shall be reduced by the amount thus supplied by the Chinese Government.

It is also agreed that the moderate charge for the safe deposit of the bonds is to be paid from the general accounts of the railway. Beyond this all expense for the engraving and the sale of the bonds and such like are to be borne by the Corporation. On withdrawal or deliveries of bonds the Safe Deposit Company shall notify the Chinese Minister in London.

Article 6.—When the work of construction is ready to begin the Director-General shall appoint a Board for surveying the construction and operation of the railway, to be called the Board of Commissioners, whose head office shall be at Shanghai. The members thereof shall be five, of whom two are to be Chinese,—one to be appointed by the Director-General and one by the Director-General in consultation with the High Authorities of the province through which the line passes; and besides the Engineer-in-Chief there shall be two British members selected and appointed by the Corporation. The salaries of these five members are to be fixed by the Director-General and the Corporation, and to be paid from the general accounts of the railway. The regulations for the guidance of the Board of Commissioners shall be subsequently drawn up by the Director-General in consultation with the Agent of the British and Chinese Corporation. In case of disagreement between the Chinese and British members the matter shall be referred to the Director-General and the Agent of the Corporation resident in China for adjustment in an amicable way.

The appointments and functions of all the employees of the railway, Chinese and foreigners, with the exception of the Engineer-in-Chief, who shall be nominated by the Corporation and approved by the Director-General, as well as their salaries, including those of the officials of high rank referred to in the following paragraphs, are to be made and fixed by the Board of Commissioners and reported to the Director-General. In the case of important appointments the same shall be first reported to the Director-General by the Chinese members of the Board.

In addition to the Board of Commissioners, the Viceroy (the Superintendent of Southern Trade) may also appoint an official of equal rank with the above-mentioned two Chinese officials, whose duty will be to make report for the information of the High Provincial Authorities on the state of the railway accounts, the progress of the work, and the management of the railway. To this end he will be granted every facility by the Board of Commissioners, who will always give him access to the records of the head office at Shanghai. But this official shall not in any way interfere with the Board in the performance of its duties. The salary of this officer shall be the same as that of the two Chinese members of the Board, and be paid out of the railway account.

The functions of the Engineer-in-Chief, who will at all times give courteous consideration to the wishes of the High Provincial Authorities and the Director-General, shall be limited to the construction and operation of the line and the management of affairs connected with the railway. No foreigners employed in the railway shall be allowed to treat Chinese officials with disrespect, or interfere in local affairs, or usurp the authority of local officials; and should any such be guilty of riotous conduct, or of wounding and maiming Chinese, the same shall be dismissed on complaint being made by the Director-General.

As the progress of construction reaches any particular province the appointment, under the Imperial sanction, of a Chinese official of high rank shall be made in such province by the Director-General, for facilitating the settlement of any local matter with the Provincial Government concerned.

For the service of the railway any Chinese of official rank and competent for the work may be recommended by the Board of Commissioners to the Director-General for employment, under the formality of a letter of appointment.

For the important offices of the railway foreigners of ability and experience shall be employed. In the engineering and traffic departments competent Chinese may also be employed, and all employees, whether Chinese or foreigners, if incompetent in their work or unsatisfactory in their behaviour, may be dismissed at any time by the Board of Commissioners, and the dismissal shall be reported to the Director-General. The Chinese and British members of the Board when ill or absent may be represented at the Board by available substitutes. In the case of the Chinese members the substitutes must be approved by the Director-General, and in case of the British members by the Corporation.

When deemed necessary a school for the education of Chinese in the construction and working of railways shall be undertaken by the Board of Commissioners, subject to report to and approval by the Director-General.

The accounts of the receipts and disbursements of the railway are to be kept by a Chief Accountant, whose records and books are at all times open to the inspection and examination of the Board of Commissioners. All the accounts of the railway construction and operation are to be kept in Shanghai currency in the English and Chinese languages, with the combined signature of a Chinese and British official. The staff of the Chief Accountant's department shall be composed of Chinese and foreigners, who must be satisfactory and reliable men.

Article 7.—Under the provisions of Article 3 of this Agreement the properties covered by the first mortgage security hereby created include the railways, its property and equipment, said mortgage to be executed by a deed in the usual form as contemplated by the said Article. But subject to the guarantee and mortgage thus given by the Chinese Government, it is hereby declared that this railway is in fact a Chinese property.

All the lands that may be required for a double line of railway from Shanghai to Nanking, and for the double track-sidings, stations, repairing shops, and car-sheds to be provided for in accordance with the detailed plans now made or hereafter to be made by the Engineer-in-Chief, and approved by the Director-General, shall be acquired by the Railway Administration, whether in whole or in part, according to the means at its disposal at the actual cost price of the land. The cost of such land is not to exceed £150,000.

The titles to the land for the line and of all other lands shall be free from all encumbrances or entanglements, and shall from time to time as soon as secured be registered in the name of the railway.

For such money as may be provided by the Railway Administration for the purchase of land there shall be allowed yearly interest at the rate of 6 per cent., to be paid by the railway after the fixed charges and maintenance and interest of 5 per cent. on the bonds shall have been met.

Notices of such purchase (together with corresponding title-deeds) are to be transmitted by the Railway Administration under the direction of the Director-General to the local agent of the Corporation for record and preservation in its office in Shanghai, and for the purpose of establishing the first mortgage security (and thereafter for the return to the Railway Administration) as hereinafter in this Article provided in respect of railway lands and properties. When the term of this Agreement expires all the title-deeds shall be surrendered and returned to the Railway Administration.

The amount to be advanced to the Chinese Railway Administration for any land within the survey limits shall altogether not exceed the sum of £150,000, for which yearly interest at the rate of 6 per cent. shall be allowed from the receipts of the railway. It is understood that any land bought by the Chinese Railway Administration with their own money outside of the survey limits, but needed for future requirements, shall be on the Chinese Administration's own account, and no interest shall be allowed on the price thereof.

It is further agreed that if the British and Chinese Corporation is called upon to provide means for the acquisition of the lands, whether by the sale of bonds or by advances from other sources, the Chinese Government guarantees to procure and protect all the lands that are required for the line of railway.

All lands the title-deeds of which are lodged with the Corporation as part of the first mortgage security of the loan shall not be disposed of in any way by hire, lease, or sale to any party for any purpose whatever without the written consent of the Chinese Administration.

It is also agreed that the lands thus bought, whether from Chinese or British advances, shall be free from all entanglements arising from the removal of graves or from prejudices of "fengshui," and shall be conveyed by full and sufficient deeds of assignment according to Chinese law, all of which are to be kept and recorded in the Shanghai office of the British and Chinese Corporation, and to be held by it as a first mortgage security for the bonds under the provisions of this Agreement until such time as principal and interest of the bonds, together with all indebtedness, shall have been paid off, when the same shall then be returned to the Chinese Railway Administration.

For the proper protection of the first mortgage security the Chinese Government undertakes that until the bonds shall have been redeemed, and the net profits on the net profit certificates shall have been paid, no part of the lands comprised in the mortgage security or the railway with its appurtenances shall be

transferred or given to another party, or shall be injured, or that the rights of the first mortgage shall be in any way impaired.

It is likewise agreed that until the interest and principal of the loan and all indebtedness shall have been paid off, or unless with the express consent in writing of the Corporation, the Chinese Government or the Chinese Railway Administration shall not again mortgage the above properties to another party, whether Chinese or foreign.

During the period of this agreement no special taxes shall be levied by the Chinese Government on the railway, its appurtenances or earnings, but all taxes at present payable, such as land tax, as well as any taxes which the Chinese Government may hereafter institute, such as stamp duty, etc., and which may be applicable generally to all commercial transactions in China, shall also apply in the case of the railway and its operations.

The first expense in railway construction being the purchase of land, it is agreed that as soon as the survey is made the Corporation shall advance to the Railway Administration sums as required to pay for the land purchased. For such advances the Woosung Railway, with all its property, shall be given as first mortgage security, and interest at the rate of 6 per cent. per annum shall be allowed until the first portion of the loan has been floated, when such advances shall be repaid from the first proceeds of the loan.

As owing to the unwillingness of owners to sever their land it may become necessary for the Railway Administration to acquire more land than is actually necessary for railway purposes, the Railway Administration may do so in view of future requirements, but it is understood that any land bought from funds so advanced, out of the survey limits, shall be on the Chinese Administration's own account. When the purchase of all the land is completed, and the total amount thus expended is ascertained, an additional issue of bonds for an amount not exceeding £250,000, including the £150,000 referred to in this Article, shall be made in order to repay the sums spent in the purchase of land.

Such bonds shall be similar to the bonds mentioned in Article 1 of this Agreement, and shall have the same guarantee and same mortgage security and same treatment, with, however, this difference, that they shall be redeemable at par at any time on giving six months' notice, and that the rate of interest shall be 6 per cent. per annum. The interest on such portions of this loan as is applied to the purchase of land outside of the Engineer-in-Chief's survey shall in the first place be paid out of the Chinese share of the net profits of the railway, and failing this then out of the earnings of the railway.

As the object which the Railway Administration has in view is that all railway lands should be Chinese property, the additional loan of £250,000 shall be paid off as soon as practicable. Nevertheless, although such bonds may be redeemed, the land occupied by the railway within the survey limits shall continue as mortgage security under the terms of this Agreement.

Article 8.—It is agreed that if the half-yearly interest of the bonds is not paid on any due date thereof, or if the principal of the loan remains unpaid at maturity of the same, the whole railway with all its appurtenances herein mortgaged to the British and Chinese Corporation for the bondholders shall be handed over to the Corporation to be dealt with by it according to law, in such manner as will ensure the proper protection of the interests of the bondholders. When the whole loan and the interest due thereon and all indebtedness shall have been paid off, the railway, with all its appurtenances, in good working condition shall revert to the possession and management of the Chinese, according to the provisions of this Agreement.

Article 9.—As remuneration for superintendence and services the Corporation shall receive 5 per cent. on the entire cost of all materials purchased for the railway.

It is agreed that all materials required for the railway shall be purchased in the open market at the lowest price obtainable, but it is understood that all such materials shall be of good and satisfactory quality. Invoice and inspector's certificates are to be submitted to the Chinese Administration.

With a view to encouraging Chinese industries Chinese materials are to be preferred, as also the products of the Han-yang Iron Works, provided price and quality are suitable.

No commission will be allowed to the Corporation on the purchase of materials except as herein provided. All trade discounts or rebates, if any, are to go to the construction account.

Article 10.—In the construction of the line, in the working of the railway, and in the performance of the different kinds of business connected with the railway, no interference or obstruction by Chinese or foreigners will be permitted. The Chinese Government will provide protection for the line while in construction or when in operation, and all the properties of the railway, the combined enterprise of the Chinese Administration and British and Chinese Corporation, as well as all foreigners and Chinese employed therein, are to enjoy the utmost protection from the local officials, civil and military, in the provinces through which the railway passes, particularly on occasions of local disturbance or of obstruction by natives.

The Board of Commissioners are authorized to maintain a railway police of Chinese with Chinese officers for the protection of the line. Their wages and maintenance are to be wholly defrayed by the railway. In the event of the railway requiring further protection by the military forces of the Imperial or Provincial Government the same will be duly applied for by the Director-General and promptly afforded, it being understood that such military forces, although transported free by the railway, are to be maintained at the expense of the Government or the Province, as the case may be. The railway police may not interfere with matters outside the railway.

Article 11.—In connection with the railway there shall be established and maintained a proper signalling service, which shall include such telephone and telegraph conveniences as may be found necessary to use along the line of the railway and its branches for the exclusive purpose of regulating the movement of trains and other incidental business of the railway, and such telephones and telegraphs shall not be used in or interfere with the rights and privileges of the Telegraph Administration.

It is further agreed that the Corporation may, in consultation with the Director-General, also establish and maintain in connection with such railway or its branches such other necessary adjuncts of modern railway operation as it may find expedient for the support of the railway, such as repair and manufacturing shops, docks, steamers, ferries, storage warehouses, etc.

Article 12.—It is agreed that after deducting from the income of the railways the working and other expenses as described below, the Corporation shall receive 20 per cent. of the net profits, to be represented by and in form of certificates to an amount equal to one-fifth of the cost of the line. These certificates carrying no interest, they are to have a term of fifty years and a declared face value of £100 each, and are to be issued to the Corporation at the same time as the loan bonds, and in amount proportionate to the respective series of such bonds to the amount of one-fifth of the aggregate thereof. And it is understood that if there is an issue of the loan bonds in excess of the requirements of the railway, and such excess is retired or cancelled, a like proportion of these certificates shall likewise be subject to retirement.

Before the expiration of the term of fifty years the Chinese Administration shall have the right at any time to redeem these certificates at their face value. After the expiration of fifty years the certificates shall be null and void and need not be redeemed, but if any net profits shall have accrued on such certificates prior to their redemption or maturity, said accrued net profits must be paid before the same are cancelled.

The Chinese Railway Administration is entitled to issue and receive like net profit certificates (to be in form appropriate for use in China and unlimited in their term, as also without redemption features) to an amount equal to the remaining four-fifths of the loan. These Chinese certificates may be issued in whole or in part whenever desired by the Director-General, but the net profits will be retained and used by the Railway Administration for the purpose of accumulating a fund to be derived from such share of net profits as may accrue thereon wherewith to pay off any loan bonds which may from time to time be redeemed under the provisions of this Agreement, or for generally reducing or ultimately discharging railway loan obligations whenever or wherever desirable by means of the profits of the railway. But such Chinese certificates may, however, be used in part by the Railway Administration if necessary in payment of lands which are essential to the railway, and which cannot otherwise be conveniently acquired by it.

The yearly income of the railway shall be subject to a deduction of all working expenses, cost of maintaining and repairing the railway, renovating or replenishment of engines and rolling-stock, and all expenditure connected with the business of the railway, and subject to the payment of interest on the bonds at 5 per cent. per annum (and of interest of 6 per cent. per annum on the cost of the land provided by the Chinese Administration, or provided by an advance from the British and Chinese Corporation), whatever is left of the gross income is considered to be net profits, of which one-fifth is to be given to the Corporation for disposal as it may see fit. If the loan bonds shall have been all redeemed according to the provisions of this Agreement before the net profit certificates issued to the Corporation have been redeemed, or shall have lapsed by effluxion of time, the Corporation shall be permitted to have a representative in the railway office (whose salary is to be paid by the Railway Administration) to inspect the accounts of the railway.

The duties of this officer are those of an Accountant who is to protect the interests of the foreign holders of net profit certificates until such time as these certificates shall have all been redeemed or lapsed by effluxion of time, when the services of such Accountant shall be dispensed with.

Article 13.—The British and Chinese Corporation are hereby appointed trustees for the bondholders and holders of net profit certificates, and in any future negotiations respecting these loans or matters arising in connection therewith, which may take place between the Railway Administration and the Corporation, the latter Corporation shall be taken as representing the bondholders and holders of net profit certificates, and as empowered to act on their behalf.

Article 14.—All materials of any kind that are required for the construction of the main line or branch lines, whether imported from abroad or from the provinces to the scene of the work, shall (following the precedent of the Northern Railway) be exempted from Customs duty and likin. The bonds of this loan together with their coupons, the net profit certificates and the income of the railway, shall be free from imposts of any kind by the Government of China.

As to the likin for goods or passengers which may be transported over the lines from, to, or through the different provinces, the Director General will confer with the Government Bureau of Mines and Railways and the Board of Revenue with a view to devising means to protect the traffic of the railway, and those who may use the railway for the transport of their goods, from illegal impositions and other abuses.

If the arrangements for the levy of likin over other railway lines is found to be more advantageous than that of the railways mentioned in this Agreement, the same advantages shall be extended to and enjoyed by the Shanghai-Nanking Railway, and by those who make use of the same.

Article 15.—It is agreed that during the time of the construction of the line the yearly 5 per cent. interest on the bonds and 6 per cent. interest on the amount spent in the purchase of the land are to be paid from the proceeds of the loan. The accruing interest from any

proceeds of the loan not used during the period of construction, and the earnings from the working of any sections as they are built, are to be used to make up the amount required for the payment of the said interest, and if any deficiency remains it is to be met from the proceeds of the loan.

When the construction of the line is wholly completed the interest on the bonds and on moneys spent in purchasing the land are to be paid from the earnings of the line every half-year on the first day of June and first day of December.

It is hereby agreed that the amount required for the payment of interest and repayment of principal, together with a sum of one-quarter of 1 per cent. on such amounts to cover commission to the Hongkong and Shanghai Banking Corporation, who are hereby appointed agents for the service of repaying the loan, shall be paid to them in Shanghai fourteen days before the due dates, in Shanghai sycee sufficient to meet such payments in sterling in London, exchange for which shall be settled with the Hongkong and Shanghai Banking Corporation on the said date of payment at the rate fixed at the time of settlement.

The Chinese Government undertakes and hereby promises to pay the principal of the loans and the interest on the loans on the due dates fixed therefor. If at any time the earnings of the railway and proceeds of the loan are not sufficient to pay the interest of the bonds, the Railway Administration is to devise means for supplying the deficiency; and should its inability to do so appear probable the Director-General will memorialize the Government to take measures to make up the deficiency from other sources, and thus be ready to pay off the indebtedness, so that the required amount may be placed in each case at least fourteen days previous to the due date of such interest in the hands of the Hongkong and Shanghai Banking Corporation in Shanghai.

Article 16.—In places along the line of railway where the Hongkong and Shanghai Banking Corporation has no agencies, and where it does not intend to establish any agencies, business relations are to be cultivated with the Chinese Imperial Bank and its local agencies, it being the intention of the British and Chinese Corporation to utilize the Imperial bank as much as practicable for facilitating the movement of funds.

Article 17.—The Corporation may, subject to all its obligations, transfer or delegate all or any of its rights, powers, and discretions to their successors or assigns, but the Corporation, which is a Corporation formed under English law, shall not transfer its rights under this Agreement or the management of the railway to other nations or people of any nationality except British or Chinese. Similarly the Railway Administration shall not transfer any of its rights under this Agreement to persons of other nationality.

It is further agreed that without the express consent in writing of the Director-General and the British and Chinese Corporation no other rival railway detrimental to the business of the same is to be permitted, and no parallel line to the Shanghai-Nanking Railway is to be allowed to the injury of the latter's interest within the area served by the Shanghai-Nanking main line or branch lines.

Article 18.—If on account of contingencies beyond the control of the Corporation, such as war or very great political changes in China or elsewhere, occurring before the publication of the prospectus of the issue of an important series of bonds of the loan hereby concerned, the foreign money markets are affected, or the construction of the railway is so obstructed that work cannot be carried on, the Corporation will be allowed a reasonable extension of time for floating such loan or the bond issues thereof, or for the commencement or completion of the construction of the railway. But if bonds have already been issued and interest already become payable thereon, then the work cannot be suspended or postponed unless subject to the exceptions mentioned in the preceding paragraphs.

When the Agreement has been ratified the work shall be begun as soon as possible, and if the Chinese Railway Administration desire, each section will be pushed on as rapidly as practicable. From the date of ratification a limit of five years shall be allowed for the completion of the whole line, subject to the preceding exceptions mentioned in this Article; and if this period is exceeded, unless with the consent of the Chinese Administration, the Corporation shall forfeit its one-fifth share of net profits already earned during the previous five years, and shall not begin to participate in such net profits until the line has been completed.

Article 19.—In the working of the railway the tariff for fares and freights is to be prepared by the General Traffic Manager, and submitted to the Board of Commissioners, who shall, after due consideration of existing tariffs of other railways in China, approve an economical rate. The General Traffic Manager is likewise authorized to make arrangements, subject to the approval of the Board of Commissioners, with connecting railways of other companies for through rates of fare and freight.

In case of military operations, whether on account of foreign war or internal insurrection, the movement of troops, ammunition, and stores, by the Chinese Government, and in case of famine or other great calamity, the despatch of relief shall, on the requisition of the Director-General, have preference over the line at half of the tariff rates.

Nothing to the injury of China shall be allowed to be carried over the line, neither shall the line be used to the detriment of China.

Article 20.—In the Preliminary Agreement, dated 13 May, 1898 (23rd day of intercalary 3rd Month of the 24th Year of Kwang-Hsu), it is stipulated that the Railway Administration has the right to redeem the loan at 102½ after twelve and a half years, and at par after twenty-five years. It is now agreed that if at any time after the lapse of twelve and a half years from the date of the issue of the bonds the Chinese Railway Administration receives instructions from the Chinese Government to cancel any of the bonds or any of the net profit certificates, the Director-General shall, not less than six months previous to the proposed redemption, notify in writing the Agent of the Corporation in Shanghai declaring the number of bonds or the number of net profit certificates so required to be redeemed and cancelled.

The Agent of the Corporation shall immediately on the receipt of such notice in writing proceed to make arrangements for the desired redemption by drawing lots, and taking other proper steps in the way customary in London, of the number of bonds or net profit certificates in such quantity as may be required. And as soon as the Railway Administration, under instructions from the Chinese Government, shall remit the proper amount according to the redemption price of the bonds or the redemption price of the net profit certificates, together with the interest due on the bonds, or the net profits due on the certificates, a notice shall be published in two of the most prominent papers in London, and in such other financial centres as may be agreed upon with the Chinese Minister for four weeks. At the expiration of the four weeks, and on the day fixed for the redemption, the Corporation shall cause the usual lots to be drawn for the redemption of the bonds or certificates, and shall pay over the respective prices of the same to their respective holders, and shall thus redeem the bonds or net profit certificates and cancel them, and thereupon the same are to be delivered to the Director-General, or the Chinese Minister in London, for return to the Director-General.

All the loan bonds and the net profit certificates shall express that they are redeemable at any time on the conditions mentioned in the preceding paragraph, and shall state that the payment of any interests for the bonds, and of the participation of any of the net profits by the certificates so drawn by lot, entirely cease from the date mentioned by the published notice of the Corporation. The amount required for the redemption shall, however, have to be got ready and placed in the hands of the Hongkong and Shanghai Banking Corporation before such redemption is carried out.

The loan bonds, if redeemed before twenty-five years from the date they were originally issued, shall be paid for with a premium of 2½ per cent. over their face value (*i. e.* £102, 10*s.* will be required to pay £100), but after twenty-five years from the date of issue to the expiry of the term of the loan the bonds may be redeemed without payment of any premium. If any interest is still due on any of the bonds at the time of redemption, such interest shall have thereupon to be paid in full. As to the net profit certificates, if they are redeemed within the term of their duration they are to be paid for according to their face value, and such certificates run to the end of their term they become null and void and no price need be paid on them, nor need they be redeemed, but any net profits still due on them shall have to be fully paid up according to their amounts before the same are cancelled.

Article 21.—If any proceeds of the sale of bonds are lying unused and bearing interest on their deposit whilst the construction of the railway is going on, such interest is to go to the general account of the Chinese Railway Administration, in order that the Railway Administration may enjoy the full advantage thereof.

It is also agreed that if the Corporation shall find it necessary, before the sale of any of the bonds, to advance any money for the work, the expense of effecting such advances, together with the interest thereon, not exceeding a charge of 6 per cent per annum, shall be deducted from the interest derived from the above mentioned unused proceeds of the sale of the bonds, or otherwise to be provided for in the construction accounts. It is further agreed that the proceeds of the first sale of the bonds immediately following any such advance shall be used to pay off the said advances, so as to save the cost of the aforesaid charge.

Article 22.—If any of the bonds still remain unredeemed, when the fifty years of the term of the loan are about to expire, the Director-General will, within two years preceding the expiry of the said term, negotiate by writing with the Corporation for an extension of the term of the loan; and if six months shall have expired after such negotiations in writing and no definite arrangements shall have been come to, the Chinese Government shall be at liberty to take steps to devise means for procuring elsewhere funds to pay off the loan, and to redeem the bonds and cancel the mortgage.

Article 23.—The existing Woosung-Shanghai line (as soon as the price agreed upon is ready to be handed over to the Railway Administration) shall be taken over as part of the Shanghai-Nanking system, and the earnings and administration of this section shall be treated in like manner as the Shanghai-Nanking line. The price of the Shanghai-Woosung line shall be taken as Tls. 1,000,000, and this amount shall be paid to the Chinese Railway Administration out of the proceeds of the loan.

Article 24.—Immediately after the signature of this Agreement, and before the issue of any prospectus of the loan to the public, the Director-General shall memorialize the Throne and obtain an Imperial Edict confirming and sanctioning the provisions of this Agreement. The Imperial Edict so received shall then be officially communicated without delay to the British Minister in Peking by the Wai-Wu-Pu.

Article 25.—This Agreement is executed in quintuplicate in English and Chinese, one copy to be retained by the Railway Administration, one by the Wai-Wu-Pu, one by the Bureau of Railways and Mines at Peking, one by the British Minister in Peking, and one by the Corporation, and should any doubt arise as to the interpretation of the Agreement the English text shall be accepted as the standard.

Signed at Shanghai by the Contracting Parties this fifteenth day of the intercalary fifth month of the twenty-ninth year of the Emperor Kwang-Hsu, being the ninth day of July nineteen hundred and three of the Western Calendar.

AGREEMENT FOR THE CONSTRUCTION OF A RAILWAY FROM TAOKOW TO CHINGHUA, IN THE PROVINCE OF HONAN, MADE BETWEEN H. E. SHENG HSUAN-HUAI, DIRECTOR-GENERAL OF RAILWAYS, BEING THERETO SPECIALLY AUTHORIZED BY THE CHINESE GOVERNMENT, AND GEORGE JAMIESON, ESQ., C. M. G., AGENT-GENERAL OF THE PEKING SYNDICATE LIMITED, ALSO BEING FULLY AUTHORIZED BY THE SAID SYNDICATE.

1.—On the 21st May 1898 (Kwanghsu 24th year 4th Moon 2nd day) the Shansi Bureau of Trade signed an Agreement with the Pekin Syndicate for working coal and iron in the five following places, namely, Yu Hsien, Pingting Chow, Luanfu, Tsechowfu, and Pingyangfu in the province of Shansi, and on the 21st June 1898 (Kwanghsu 24th year 5th Moon 3rd day) the Yu-Feng Company signed a mining Agreement with said Syndicate for mining in Honan in the neighborhood of Huai Ching and north of the Yellow River. These Agreements were both ratified by the Tsungli Yamen, in pursuance of an Imperial Decree dated 17th May 1898 (Kwanghsu 24th year intercalary 3rd Moon 27th day). In Article 17 of said Agreements it was stated that the Pekin Syndicate, on notifying the Governor of the province, should be permitted to build a railway to connect the mines with a main line or with water navigation. In June 1902 the Pekin Syndicate began to open coal mines in Sui Wu Hsien of Honan province, and at the same time gave notice to the Governor and obtained permission to build a railway from the said mines to Taokow, a port on the Wei River.

The British Minister has now applied that the said railway be put under the General Administration of the Imperial Chinese Railway Company, and the matter having been arranged in consultation with the Wai Wu Pu, this Agreement has been discussed and settled between the Director-General of the said Imperial Chinese Railway Administration and the said Syndicate.

The line from Taokow to Tsechow is divided into two sections, the first from Taokow to the neighborhood of Chinghua Chen, a distance of 90½ miles; the second section is from Chinghua Chen to the neighborhood of Tsechow in Shansi, a distance of 38 miles more or less.

The construction of the first section has been undertaken by the Pekin Syndicate, and is now approaching completion. The present Agreement deals specially with the first section from Taokow to Chinghua Chen. As regards the second section, it is agreed that hereafter, when the Pekin Syndicate has fixed a date for opening mines in the neighborhood of Tsechow, a supplementary Agreement will be drawn up between the Director-General and the Pekin Syndicate to provide funds for construction, etc., of this section on terms in conformity with those of the present Agreement for the Taokow to Chinghua line, and on the basis of the Russian Cheng-Tai Railway Agreement, said terms to be settled at their discretion.

The cost of construction of the line from Taokow to Chinghua Chen, including rolling-stock and monies expended by the Syndicate as estimated by the Chinese Engineer after verification of the proper accounts, is £614,600. But in order to provide a liberal sum to meet the expenses of working the line until it is fully developed, and the interest on the loan, the Director-General has fixed the amount of the loan at £700,000, in 7000 bonds of £100 each. This loan is to bear interest at 5 per cent. per annum, and to be called the Chinese Imperial Government Honan Railway 5 per cent. (gold) loan of 1905.

2.—Out of the above amount of £700,000 there will be issued to the Syndicate 6829 bonds of £100 each, which the Syndicate takes firm at the price of 90 per cent. of face value, equivalent to £614,600 cash, in order to refund the above amount of capital. This will be done on the day when the line is handed over to China, and interest on the bonds will accrue from date of issue.

At the same time the Syndicate will make up and present an account with vouchers of all initial expenditure not already included in construction account, and of the sums provided by them from time to time for the ordinary working of the line from the date of opening to traffic to the time of handing over, and request the General Administration to examine and settle it. Any loss on working account after deducting earnings will be borne half and half by each. To the amount so found due will be added interest on capital from January 1st, 1905, to the date of handing over, and the total of these two items will be refunded to the Syndicate by the former issue of bonds out of the 171 surplus bonds in hand for the required amount reckoned at 90 per cent. of face value. If any bonds still remain over, they will be retained by the Imperial Chinese Railway Administration for future use. If after the line is taken over the earnings of the line are insufficient to meet the payment for interest and refund of capital at due date, a further loan may be obtained from the Syndicate. These bonds shall be signed in the name of the Chinese Government by the Chinese Minister in London.

The interest coupons will be paid at their face value in gold in London on the 1st of July and 1st January of each year. Coupons falling due and paid will be collected in numerical order by the Syndicate at its cost and handed over to the Chinese Minister in London.

3.—The loan shall be redeemed in twenty years dating from the tenth year of issue by annual drawings, which shall be held in London at the office of the Pekin Syndicate, in conformity with the schedule hereto annexed.

The drawings will be held on the 2nd Tuesday of January of each year. The first of such drawings shall be held in the year 1916. The number of drawn bonds at each drawing will be published in four daily newspapers at the cost of the Syndicate.

4.—Drawn bonds shall be paid in gold at their face value at date when the next interest falls due. Bonds presented for payment must be surrendered along with all the interest coupons not yet due. In case of shortage the sum of the missing coupons shall be deducted from the capital repayable. Interest on the bonds will cease on the date when the latter are repayable. Repaid bonds will be collected by the Pekin Syndicate at its cost, and handed over to the Chinese Minister i London.

5.—The Chinese Government shall not be at liberty before the year 1916 to augment the amount of the annual instalments for redemption, nor to repay the whole amount of the loan, nor to convert the loan. After this date the Chinese Government shall be at liberty at any time to repay the whole amount of the loan, provided, however, that until the expiry of the Syndicate's mining concessions the rates then in force for the conveyance of minerals shall not be arbitrarily increased to the detriment of the Syndicate's business. On the other hand, the Syndicate, after having settled an equitable tariff with the General Administration, based on the practice on other lines, shall not make pretexts to lower the rates to the detriment of the fund available for payment of principal and interest.

6.—Interest coupons and drawn bonds shall be repayable in gold in London at the office of the Pekin Syndicate, or of such bank as the Syndicate may appoint for that purpose.

7.—Payment of interest and repayment of the bonds forming this loan are guaranteed upon the general revenue of the Chinese Government. Further, by consent of the Chinese Government, the Imperial Chinese Railway Administration hereby declares that the net earnings of the said section of railway, after payment of the ordinary working expenses, are specially reserved for payment of interest and repayment of the said bonds, as is set out in the Working Agreement made between the said Imperial Chinese Railway Administration and the Pekin Syndicate, and which working Agreement is to be taken as one with this Contract. This reserve is exclusively for the purposes above set forth, and is not divertible until the final extinction of the bonds of this loan.

8.—The Imperial Chinese Railway Administration, after having taken note of the net receipts, authorises the Pekin Syndicate to convert the amount into gold, which shall be done on the most favorable terms in the interest of the Chinese Government and the Imperial Chinese Railway Administration, in order to assure the service of the loan at the next half-yearly period of payment. The remittances to the head office of the Pekin Syndicate in London shall continue until the sum necessary for the whole service of the loan at the next half-yearly payment has been realised in gold, and so that the service of the loan is assured three months at least before the half-yearly payment falls due.

The bank in which such sums are deposited will allow the best interest obtainable, for the benefit of the Imperial Chinese Railway Administration. The account in which said sums stand will be debited twenty days in advance with all the payments falling due at any half-yearly period, as provided for in this Contract, whether for interest, repayment of capital, cost of transport or commission.

9.—In order to assure more fully the guarantee now given for the loan, the Imperial Chinese Railway Administration creates in favor of the bonds a first mortgage over the said section of railway line, its permanent way, rolling-stock, and earnings. This special hypothecation is made to and accepted by the Pekin Syndicate for the benefit of the bondholders.

In case the Imperial Chinese Railway Administration shall fail to carry out the engagements entered into by this Contract the Pekin Syndicate can exercise, in respect to the said railway and property, all the rights and powers which they are entitled to exercise resulting from this special hypothecation.

10.—The foregoing stipulations do not militate against the responsibility of the Chinese Government in regard to this loan as specified in Article 7. The Chinese Government will devise means to provide the amount in gold necessary to supply the deficiency in case the sums accruing from the net earnings of the said section of railway, and paid over by the Chinese Railway Administration, are insufficient, after conversion into gold, to provide at least three months ahead for the payment falling due at the next half-yearly period.

In such case the Chinese Government will on demand place at the disposal of the Pekin Syndicate, fourteen days in advance of the due date, either in gold or value in some other form sufficient to produce in gold, the sum which the Syndicate may have notified as being necessary to meet the service of the loan.

11.—From the monies thus received from the Imperial Chinese Railway Administration, or from the monies paid over by the Chinese Government, the Pekin Syndicate shall duly set aside beforehand the sums necessary for the next service of the loan on the basis of the requirements of the last preceding half-year.

12.—The Chinese Government will pay to the Pekin Syndicate, or to the bank charged with the service of the loan, a commission of one-fourth of 1 per cent. on the amount of interest coupons paid,—that is, £25 on each £10,000, and the like commission on all bonds drawn for payments or repaid in anticipation of the due date. The amount of this commission will be taken from surplus earnings of the railway, if there are any, and in case these are insufficient it will then be paid by the Chinese Government.

13.—The Chinese Government binds itself to respect and cause to be respected the privileges attaching to the bonds as stipulated for in the present convention, and to maintain the bonds themselves, the interest coupons and operations incident to the service of the loan, free from every tax and impost of whatsoever nature.

14.—Coupons not presented for payment within five years from the date when they fall due will be forfeited for the benefit of the Chinese Government. In case of drawn bonds the term within which payment may be claimed is thirty years. In the case of a deceased bondholder the right will pass to his heirs, executors, etc., in conformity with the law of his own nationality.

Payment of the coupons and repayment of bonds will be made whether in time of war or peace, and irrespective of whether the holder belongs to a hostile or friendly State.

If bonds are lost, stolen, or destroyed the Chinese Government, upon satisfactory proof of the facts of the loss and the title of the

claimant, will authorise the Pekin Syndicate to issue fresh bonds to replace those lost, at the expense of the Syndicate.

15.—The Chinese Government, through its Representative in London, will take the necessary steps and furnish the necessary documents so as to enable the bonds to be officially quoted on the London Stock Exchange.

16.—The price of all land taken up for the railway having been included in the loan, the Syndicate will in the first place hand over the title-deeds to the Imperial Chinese Railway Administration, so that a list may be made which, after being stamped by the Magistrates of the several districts concerned, will be retained for record. The Railway Administration will then return the deeds to the Syndicate for custody, having first impressed on each a stamp indicating that they are not to be sold, pledged, or mortgaged. When the term has expired, or when the loan is fully repaid, the Syndicate will thereupon hand over to the Railway Administration all the original title-deeds, to be held by them as owners of the property. During the continuance of the term the Syndicate shall not assign the deeds to others, whether by way of sale, mortgage, or pledge.

17.—This Agreement and the rights under it being made with the Pekin Syndicate, which is of British nationality, the said Syndicate, besides conforming as hereby required with the several articles of the Agreement, shall not either openly or secretly alienate the said rights to persons of another nationality and shall not substitute persons of another nationality in the management of the railway affairs. A breach of this stipulation will entitle the Imperial Chinese Railway Administration to take the management out of the hands of the Syndicate, and entrust it to another company, and in that case the Syndicate shall have no claim for compensation.

The foregoing places no restriction on the holding of shares in the Pekin Syndicate by persons of another nationality, nor on the holding of bonds of this loan, both of which may be freely bought and sold on the market at the convenience of the holders.

18.—In the accounts of this section there has been included an item for preliminary survey expenses, as also the cost of partial surveys of the second section which have already been made by the Syndicate, the result of which will be submitted to the Director-General.

19.—All plant and materials necessary for the repair and working of the line will be purchased by the Syndicate as agents, but in placing such order the Syndicate will do their best to get the most favorable terms. A list of articles required shall be submitted to the Director-General for approval before the order is given.

It is understood that articles which China herself can manufacture, if quality and price are the same, are not to be ordered from abroad. The workshops and mines controlled by the Director-General Sheng ought more especially to have the preference in supply of such articles, provided that in quality and price the articles are equivalent to what can be imported from abroad. By price is meant the cost in the foreign country plus freight and insurance. All materials imported from abroad shall be exempt from customs duty, and from likin in transit to the interior.

20.—In case of difference of opinion arising between the Pekin Syndicate and the Chinese Government, or the Imperial Chinese Railway Administration, the matter in dispute shall be discussed and settled between a member of the Wai Wu Pu and the British Minister. If these cannot agree the Wai Wu Pu and the British Minister will appoint an Arbitrator, whose decision will be final.

21.—This Agreement is executed in duplicate, one copy to be kept by the Imperial Chinese Railway Administration and the other by the Peking Syndicate. In case of doubt or ambiguity of meaning between the two texts, the English version shall be deemed the standard. This contract shall be submitted to the Throne by the proper authority, who will request ratification. After ratification the Wai Wu Pu will officially communicate the fact to the British Minister at Peking for record, and so that the Syndicate may conform to the articles hereby agreed upon.

All the above must be done within one month from date of signature.

Signed and sealed at Peking the 3rd July, 1905.

Signature and Seal of
SHENG HSUAN-HUAI,
Director-General of Railways.
(Signed) G. JAMIESON,
Agent-General, Pekin Syndicate Ltd.

WORKING AGREEMENT MADE BETWEEN HIS EXCELLENCY SHENG, DIRECTOR-GENERAL OF RAILWAYS, BEING THERETO SPECIALLY AUTHORIZED BY THE CHINESE GOVERNMENT, AND G. JAMIESON, C. M. G., AGENT-GENERAL OF THE PEKIN SYNDICATE LIMITED.

1.—The Imperial Chinese Railway Administration, under the authority of the Imperial Government, authorises the Pekin Syndicate, which will appoint a General Manager for the purpose, to manage, administer, and work the Taokow-Chinghua section of railway for profit on behalf of the said Railway Administration. Notice of the appointment of the General Manager shall be communicated beforehand to the Director-General for his information and confirmation.

2.—As soon as this section of the line is completed, the Pekin Syndicate will report to the Director-General, and after being definitely taken over by him, the Pekin Syndicate will take charge of it for working. The section is to be completely provided beforehand with all the rolling-stock necessary for working, as also with a supply of tools, furniture, and funds for working expenses. The Pekin Syndicate or its delegate, in conformity with the stipulation in Article 1, will organize the service. It will have authority to engage or dismiss officials and servants, and as to their salaries a scale thereof will be drawn up beforehand for submission to the Director-General, and subsequent alterations will also be submitted for his approval. The Syndicate shall also purchase all articles necessary for the maintenance and repair of the line, shall fix rates for goods and passengers in accordance with the railway regulations on other lines, shall receive all the earnings and pay all the working expenses and the expenses of the Imperial Chinese Railway Administration relative to this railway. All the above working details must be submitted beforehand by the Pekin Syndicate or its delegate to the Director-General of Railways and settled in consultation.

The General Administration shall have the fullest power to examine the details of income and expenditure, and to appoint a Representative, a Cashier, Accountant, and an Interpreter, who will be associated with the European staff, in order to exercise the above-mentioned power of examination. The salaries of the Representative and his associates above-mentioned will be paid from the office of the Tsechow-Taokow Railway.

The Representative shall countersign all vouchers for payment. Accounts will be rendered monthly to the General Administration in English and Chinese, one copy each, and signed by the respective English and Chinese officials.

The General Administration reserves the right to cause the dismissal of any employee, whatever his nationality, including the General Manager, who does not perform his work satisfactorily or is guilty of misconduct, insubordination, or disrespect towards the Chinese authorities, and this should be mentioned in the contracts at the time of engagement of the employee.

All Chinese Employees, whether for repairs of line or otherwise, will be selected by the Representative of the Director-General, who will place them under the executive orders of the General Manager. No Chinese officials or servants can be engaged without the sanction of the Director-General. The expenses of the Shanghai Imperial Railway Administration in respect to this line shall be paid in the same way as for the Luhan Railway. After this section is finished and the working has begun, if additional rolling-stock or plant is required, or if improvement or extensions of the line or stations become necessary, the funds for the same shall be provided by the office of the Tsechow Railway. As regards contracts for the supply of materials necessary for maintaining and repairing the line, means should be devised to place the same at Chinese workshops. It is understood that the mines and workshops controlled by H. E. Sheng shall have the preference on the conditions and at the price at which the articles could be purchased abroad. By price is meant laying down cost in China.

3.—In the event of military operations, whether due to foreign war or internal disturbances, the railway will give the preference to Chinese Government troops, stores, or munitions of war over private merchandise in conveyance over the line.

Rates to be charged in such cases shall be one-half of the ordinary rates, and in such matters the railway will carry out any special instructions given by the Director-General. Articles tending to the injury of the Chinese Government are not to be carried on the line.

In case of famine, stores for relief will be carried at half rates.

Special arrangements will be made in consultation with the Representatives of the Director-General for conveyance of local authorities or members of the Imperial Government travelling on important business over the line. Free passes over the railway shall be countersigned by the Representative of the Director-General.

4.—From the net earnings of the line after paying all working expenses the Pekin Syndicate shall retain such sums as are necessary to meet the service of the loan at least three months in advance of the next half-yearly payment. This procedure will be followed until the whole loan is finally redeemed. The sums retained will be paid over monthly to the Pekin Syndicate, or to the bank appointed for that purpose by the Syndicate. The latter will convert the sums so received into gold at best rate obtainable, in order to be used for the service of the loan. Information as to this will be given from time to time to the Director General.

When by means of monies thus paid over the service of the loan is assured, the Syndicate will set apart 10 per cent. of the surplus, which will be devoted to building up a reserve fund in order to meet the cost of ordinary or extraordinary repairs with a view to assure the working of the line. The surplus of net earnings still remaining will be paid over to the Imperial Chinese Railway Administration. When the loan is all repaid, in accordance with the next following article, the Syndicate or its Representative will hand over to the Representative of the Director-General all the line, fixtures, rolling-stock, and appurtenances, the whole in good working condition.

5.—The duration of the present contract is fixed at thirty years from date of signature. If, however, on the expiry of that date the loan is not fully paid off, the term of the contract will be necessarily extended, and it will continue until the whole loan is finally redeemed. But if the loan is finally redeemed before the due date, the present working contract shall become null and void from the date of such redemption.

6.—The Pekin Syndicate, during the term of this contract for the working of the line, shall be entitled to receive from the Imperial Chinese Railway Administration, on making up the yearly accounts, 20 per cent. of the surplus profits of each year. By surplus profits is meant what is left over after providing for payment of interest and redemption of capital.

7.—In case of dispute the matter is to be settled as provided for in Article 20 of the principal contract.

8.—If the earnings are insufficient to meet working expenses, the Imperial Chinese Railway Administration will provide funds so as to enable the regular working of the line to be kept up. The funds thus supplied will be considered as a temporary advance merely, and to be paid as soon as the income exceeds expenditure.

9.—All materials and supplies which the Syndicate may require for the working, main-

tenance and repair of the line shall, if imported from abroad, be exempt from Customs duty and likin.

10.—The present contract is drawn up in two copies, one for the Imperial Chinese Railway Administration and the other for the Syndicate.

In case of doubt or difference in interpretation of the contract the English version shall be deemed the standard.

This Contract shall be submitted to the Throne for ratification by the proper authorities, and when the Imperial sanction has been obtained, it will be communicated by the Wai Wu Pu in an official despatch to the British Minister. Signed and sealed at Peking the 3rd July 1905.

Signature and Seal of
SHENG HSUAN-HUAI,
Director-General of Railways.
(Signed) G. JAMIESON,
Agent-General, Pekin Syndicate Ltd.

LOAN AGREEMENT FOR £1,100,000 FOR RECOVERY OF THE CANTON-HANKOW R. R. CONTRACTS (TRANSLATED FROM THE CHINESE.)

(*Date of signing not given in the agreement. Becomes effective October 6, 1905.*)

This Agreement, made between the Junior Guardian of the Heir Apparent Viceroy of the Hu-Kuang, Chang Kung Pao, of the Empire of China, and the Hongkong Government of Great Britain:

Whereas: Chang Kung-Pao has received a special decree directing him to arrange to take back the Canton-Hankow Railroad, and whereas the loan (hereinafter described) has been consented to by His Majesty the Emperor of China, and is to be made on behalf of the present and the succeeding Viceroys or Governors of Hupeh, Hunan, and Kuang-tung; and

Whereas: All the affairs pertaining to or concerning the Canton-Hankow Railroad are under the management of Chang Kung-Pao who is now in need of money to pay the American Company for the redemption of the right of constructing the railroad; and whereas Chang Kung-Pao after conference with the British Government has requested the same to loan him the money necessary to pay the American Company in order to purchase back the outstanding shares in fulfillment of the charge committed to him; and whereas the British Government has instructed the Governor-General of Hongkong to promise the loan, as requested, for the purpose mentioned; therefore the following agreement is now made:

1. The Hongkong Government agrees to loan to the three provinces of Hupeh, Hunan and Kuang-tung the sum of One Million and One hundred thousand pounds, £1,100,000, and to hand over the said amount on the conditions hereinafter stated in paragraph No. 7. As to the amount of this debt for which each of the above mentioned provinces shall be responsible, it shall be definitely settled and upon a decision being reached, the amount for each province shall be declared.

2. This loan is made for a period of ten years, commencing on the 8th day of the 9th moon of the 31st year of Kuang-Su (October 6th, 1905), and is to be refunded in ten yearly installments, i.e. £110,000 per year, the end of the first year i.e. the 19th day of the 8th moon of the year 1906 being the day for the payment of the first installment. After the payment of the fifth installment, if the said three provinces are willing to complete the payment of the remainder of the loan in one payment, notice must be given six months prior to the proposed date of settlement. After the payment, of the loan and interest this agreement shall become void.

3. The interest on the sum included in this loan is to be £4½ per £100 per annum, payable semi-annually, being calculated on the amount of the said loan and yet refunded.

4. The amounts of the loan and the interest to be paid at each period and the dates of payment are to be reckoned in accordance with the list attached to this agreement, and are to be paid from time to time at the Treasurer's Office at Hongkong. Drafts in gold pounds will be received at their face value. If so desired by the Hongkong Government, payment of any installment shall be made in silver at the rate of the day. The opium tax of Hupeh, Hunan and Kuangtung is made a bond and a security for the payment of the capital and interest of this loan, which shall constitute a first charge upon these revenues. During the period in which the whole or any part of this loan remains unpaid, the opium tax of the three above mentioned provinces shall not be made security for any other loans, and during the continuance of this loan should there be another agreement entered into mortgaging the opium taxes of Hupeh, Hunan and Kuang-tung, either singly or unitedly, it shall not be given precedence over this agreement nor made a joint charge with this loan upon said revenues. It must be plainly stated in any such agreement that the payments of principal or interest can be paid from these revenues only after this loan shall have been paid. Should the opium tax of these three provinces be insufficient to pay the loan, the Viceroy of Hu-Kuang shall confer with Hunan and Kuang-tung ascertaining in which province the tax is not sufficient to meet the provisions of this loan and in such a province or provinces additional appropriation shall be made from other taxes or likin toward the payment of this loan. If under such an arrangement the said provinces are still unable to pay back the installments of interest and capital at the due dates, then the British Government may ask the Viceroy of Hu-Kuang to confer with Hunan and Kuang-tung ascertaining which province is unable to meet its part and shall set aside other reliable taxes or likin, to be administered by the Imperial Maritime Customs, as security for this loan.

6. It is further agreed that bonds in gold pounds guaranteed by likin shall be deposited and retained in the British Consulate General at Hankow as security for this loan, and the total value of these bonds in taels shall be equivalent to the total sum of the capital and interest of this loan. These papers shall be sealed with the seal of the Viceroy of Hu-kuang and signed by the Hankow Commissioner of Customs. If the interest and capital of this loan should not be paid into the Treasury at Hongkong at the times herein specified, these likin bonds may be used in the provinces of Hupeh, Hunan and Kuang-tung in payment of likin, and any officials of these three provinces who are at all concerned by this agreement shall be notified to act in accordance with these stipulations.

7. It is agreed that the Hongkong Government is to remit £400,000 on the sixth day of October, 1905, to the Hongkong and Shanghai Banking Corporation at Hankow to be handed to Chang Kung-Pao, who will receive the same, and the sum of £700,000 will be forwarded to New York and there to be handed over to the Chinese Minister Liang in America. The Hongkong Government may from time to time call upon the British Consul General at Hankow to request from Chang Kung-Pao such evidence as may seem fit to prove that the money loaned is being actually used for the above purposes, i. e. the purchasing of the Canton-Hankow Railroad Concession.

8. This agreement, previous to its signature, has been submitted in a Memorial to the Throne, and an Imperial Edict has been issued approving the same and the Wai Wu Pu shall at once send a dispatch to the British Minister at Peking informing him of this agreement.

9. In this agreement the opium tax of Kuang-tung has been mentioned as a part of the security given for this loan. Chang Kung-Pao has conferred with the Viceroy of the Liang-Kuang by telegraph regarding this loan and the Viceroy of the Liang-Kuang has replied agreeing to have the opium tax of his province given as security, so that there can be no difference of opinion hereafter so far as the articles of this agreement affect the province of Kuang-tung.

10. Six copies of this agreement shall be made in Chinese and English, one to be kept in the yamen of the Viceroy of Hu-Kuang, one to be kept in the yamen of the Viceroy of Liang-Kuang, one to be kept in the Governor's yamen in Hunan, one to be forwarded to the Governor-General at Hongkong, one to be handed to the British Minister at Peking, Sir Ernest Satow, and one to be kept in the British Consulate General at Hankow. In the event of their being any difference of meaning between the Chinese and English texts, the English text shall be considered the correct one.

(Sgd.) E. H. FRASER,
British Consul General at Hankow.
(Sgd.) CHANG CHIH-TUNG,
Viceroy of Hu-Kuang Provinces.

AGREEMENT BETWEEN THE WAI-WU-PU (BOARD OF FOREIGN AFFAIRS OF THE CHINESE GOVERNMENT) AND THE BRITISH AND CHINESE CORPORATION LIMITED, FOR THE ISSUE AND REGULATION OF A LOAN FOR THE CONSTRUCTION OF A RAILWAY FROM THE CITY OF CANTON TO THE BOUNDARY OF THE KOWLOON LEASED TERRITORY UNDER BRITISH CONTROL (HEREINAFTER CALLED THE RAILWAY.)

This Agreement is made at Peking on the 23rd day of the first month of the 33rd year of Kwang Hsu, corresponding to the 7th day of March 1907, and the contracting parties are:—

The Wai-Wu-Pu acting under the authority of an Imperial Decree, of the one part, and the British and Chinese Corporation Limited (hereinafter called the Corporation), of the other part.

Whereas a preliminary agreement was made on the 28th March, 1899, between H. E. Sheng, Director-General of the Imperial Chinese Railway Administration, acting under the authority of the Tsung-Li Yamen, of the one part, and the British firm of Jardine, Matheson & Company, for themselves and on behalf of the Hongkong and Shanghai Banking Corporation, representing as Joint Agents the Corporation, of the other part, and it was part of the objects thereof that the terms of another preliminary agreement signed by the same contracting parties on the 13th May, 1898, should be thereby adopted as a preliminary agreement for the construction and working of a Railway from the city of Canton to the boundary of the Kowloon leased territory under British control, subject, however, as far as might be practicable, to the terms and conditions thereafter agreed to in the final contract for the Shanghai-Nanking Railway when signed and ratified.

Now it is hereby agreed by and between the parties hereto as follows:

Article 1.—The Corporation agrees to issue, on behalf of the Imperial Chinese Government, a sterling loan (hereinafter referred to as "the loan") for the amount of £1,500,000 on the terms and conditions hereinafter contained. Imperial Chinese Government bonds are to be issued for the entire amount, similar to the bonds of the Shanghai-Nanking Railway, with the Railway as first mortgage security therefor. The loan shall be in one issue and the price agreed upon is 94 per cent. of the nominal value, subject to the other provisions of this Article as hereinafter stated. The interest on the bonds shall be at the rate of 5 per cent. per annum on their nominal value, payable half-yearly, on the first day of June and the first day of December, and shall be calculated from the date of their sale to the public.

The loan shall be issued to the public as soon as possible after signing this Agreement, but, if at the date of signature thereof, owing to an unfavorable state of the market rendering the issue of the loan and the payment of its proceeds to the Viceroy of Canton impossible on the terms above named, then in such case the Corporation shall thereafter, at such time as the Chinese Government may decide within a period not exceeding eight (8) months, issue the loan and pay the proceeds thereof to the Viceroy, deducting and retain-

ing six (6) points from the rate at which the loan is actually issued to the public, whatever that rate may be (*i. e.* if the issue price be 101 the Viceroy will receive 95, and so on).

Subject to the provisions of Article 16, the duration of the loan is fixed at thirty (30) years commencing from the date of the signature of this Agreement, but no interest shall be paid on any bonds which may be redeemed or cancelled under the terms hereinafter mentioned after the redemption or cancellation thereof.

On the face of each of these bonds shall be expressed the value thereof in the sum of £100, or in such different amounts as the Chinese Minister in London, in consultation with the Corporation, may sanction.

It is understood that the Chinese Government may hereafter, in its discretion, appoint a Director-General of the Railway, upon whom, in such case, will devolve all the powers, functions and responsibility herein attributed to the Viceroy of Canton (hereinafter called the Viceroy).

Article 2.—The proceeds of the loan are to be used in the construction and equipment of the Railway, and in paying interest on the loan during the course of construction.

The Railway, being the first mortgage security for the loan, shall be built and equipped under the direction of the Viceroy, in accordance with the provisions of Article 6 hereinafter, and shall be built as economically as possible in accordance with the best modern system.

It is understood that the Viceroy will secure all the necessary land for the Railway, and will give the necessary instructions to expedite and facilitate the work of construction. The Railway will be built in the first instance as a single line, but provision will be made, with the approval of the Viceroy and wherever necessary to meet traffic requirements, for the eventual construction of a double line.

If, during the time of construction, the proceeds of the loan, together with the accrued interest thereon, payable by the Corporation, should, after the deduction of the sums necessary for the payments of interest on the loan, be insufficient to complete the construction of the Railway, the amount of the deficiency shall either be provided from the Chinese Government's own resources or by a supplementary loan to be hereafter issued by the Corporation, the interest and other conditions of which supplementary loan shall be arranged when the time arrives, having due regard to the conditions of the money market.

When the Railway is complete, if there is a surplus from the sale of bonds, the said surplus shall be at the disposal of the Chinese Government either to redeem the bonds in accordance with the terms of this Agreement, as hereinafter stated, or to be placed on deposit with the Hongkong and Shanghai Banking Corporation, for the purpose of paying interest on the loan, or for other purposes beneficial to the Railway, in regard to which the Viceroy will communicate in due course with the Corporation.

In all matters relating to the construction of the Railway it is expressly agreed that particular heed shall be paid to the opinions and habits of the Chinese people, and that, when practicable, Chinese shall be employed in positions of trust and responsibility in connection with the Railway.

In regard to earthwork, or such other work as Chinese are competent to perform, contracts shall be entered into for such work with Chinese, under the sanction of the Head Office, and the work itself shall be carried out in accordance with plans and specifications of the Engineer-in-Chief and under his supervision.

Detailed plans and estimates of cost, whether of the respective sections of the Railway, or of any alterations of the same, are to be submitted for the approval of the Viceroy, by the Engineer-in-Chief through the Managing Director.

Article 3.—The loan shall be secured by mortgage, declared to be now entered into in equity by virtue of this Agreement, and shall, as soon as possible hereafter, be secured by a specific and legal first mortgage in favor of the Corporation upon all lands, materials, rolling stock, buildings, property and premises, of every description purchased or to be purchased for the Railway, and on the Railway itself, as and when constructed, and on the revenue of all descriptions derivable therefrom.

The provisions of this Article in respect of the mortgage are to be construed and treated as equivalent in purport and effect to a mortgage, customarily executed and delivered in England to a Trustee, for the purpose of securing loans and bond issues upon Railway properties in foreign countries.

Article 4.—It is hereby agreed that in six (6) months after this Agreement is signed, the Corporation shall provide the amount necessary to proceed with the detailed survey of the Railway, and for preliminary construction work if necessary, whether this amount comes from the sale or hypothecation of the bonds, or from advances made, provided that bonds for the required amount shall have been executed and delivered to the Corporation. If, after expiration of eight (8) months from the date of ratification hereof, the work of construction shall not have been begun on the Railway, this Agreement is to become null and void, but if failure to commence construction be due to any cause of *force majeure*, a reasonable extension of this time-limit shall be arranged between the Viceroy and the Corporation.

Of the proceeds realized from the sale of the bonds, after deducting so much of them as may be required to be kept in England for the purchase of materials and the payments of contracts there, or for repayment of advances, such amounts as may be estimated and certified to by the Engineer-in-Chief to the Viceroy through the Managing Director, as being actually required for the construction of any particular section of the Railway, may be ordered by the Viceroy, after consideration, to be transferred to Hongkong to be kept in the Hongkong and Shanghai Bank, and place to the credit of the construction account of the Railway for the exclusive purpose of constructing the Railway in the manner herein provided for under the supervision of the Head Office and the Viceroy.

On each occasion of a remittance being made to China, the amount realized in Sycee will be reported to the Viceroy, and any portion which may not be required shall be placed at interest. Similarly, the balance in England shall be placed at interest, to be allowed at the usual rate.

The accounts of the money spent from time to time in England, and of the money transferred to the credit of the construction and other accounts for use in China, are to be submitted quarterly to the Head Office for report to the Viceroy, for the information of the Waiwupu, and for his further report to the Board of Revenue, and the Board of Communications, for record therein, after such accounts have been approved and signed by him.

Article 5.—As to the form of the bond, it is to be agreed upon by the Viceroy, or by the Chinese Minister in London and the Corporation, as soon as possible after the signature of this Agreement, but if, hereafter, the money markets in London or other countries require any modification of the form of the bond, except in anything that affects the amount of the loan and the liability of the Chinese Government, which are not to be touched at all, such slight modifications may be made to meet the views of the money markets by the Corporation in consultation with the Chinese Minister in London.

Any modifications are to be reported at once by the Corporation to the Viceroy for the approval of the Waiwupu.

The bonds are to be engraved entirely in the English language, and shall bear the facsimile of the signature of the Viceroy and of his seal of office, in order to dispense with the necessity of signing them all in person, but the Chinese Minister in London shall, previous to the issue of any Bonds, put his seal upon each bond with a facsimile of his signature, as a proof that the issue and sale of the bonds are duly authorized and binding upon the Chinese Government.

Such bonds are to be numbered consecutively; and as many bonds as may be needed are to be properly engraved under the supervision of the Corporation; and after they are sealed by the Chinese Minister in London, as heretofore provided, are to be countersigned by the Corporation.

All expenses for the engraving, safe deposit, and sale of the bonds are to be borne by the Corporation.

Article 6.—When the work of construction is ready to begin, the Viceroy will establish a Head Office at Canton for the construction and management of the Railway. This Office will be under the direction of a Chinese Managing Director (appointed by the Viceroy) with whom will be associated a British Engineer-in-Chief, and a British Chief Accountant. These British employés shall be proposed and certified as competent for their posts by the Corporation, and shall be approved by the Viceroy: if their services should prove unsatisfactory to the Viceroy, he shall request the Corporation to dispense with their services and to nominate their successors, and, in the event of the Corporation desiring to remove them for good cause, it shall do so in consultation with the Viceroy. It is understood that the duties performed by these employés are intended to promote the mutual interests of the Chinese Government and the bondholders respectively, and it is therefore agreed that all cases of difference arising therefrom shall be referred for amicable adjustment between the Viceroy and the Representative of the Corporation. The salaries and other terms of agreement of the Engineer-in-Chief and the Chief Accountant shall be proposed by the Corporation, for approval by the Viceroy; and the amount of their salaries, etc., shall be paid out of the general accounts of the Railway.

For all important technical appointments on the Railway Staff, Europeans of experience and ability shall be engaged, and wherever competent Chinese are available they shall also be employed. All such appointments shall be made, and their functions defined, by the Managing Director and the Engineer-in-Chief in consultation, and shall be submitted for the Viceroy's approval; similar procedure shall be followed in the case of Europeans employed in the Chief Accountant's department. In the event of the misconduct, or the incompetency of European employés, their services may be dispensed with by the Managing Director, after consultation with the Engineer-in-Chief, and subject to the sanction of the Viceroy. The form of agreements made with European employés shall conform to the usual practice.

The accounts of the receipts and the disbursements of the Railway's construction and operation shall be kept in Chinese and English in the Department of the Chief Accountant, whose duty it shall be to organize and supervise the same, and to report thereon for the information of the Viceroy through the Managing Director, and of the Corporation. All receipts, and payments, shall be certified by the Chief Accountant and authorized by the Managing Director.

For the general technical staff of the Railway the necessary arrangements shall be made by the Managing Director in consultation with the Engineer-in-Chief, and reported to the Viceroy in due course.

The duties of the Engineer-in-Chief shall consist in the efficient and economical construction and maintenance of the Railway, and the general supervision thereof in consultation with the Managing Director. He shall always give courteous consideration to the wishes and instructions of the Viceroy, whether conveyed directly or through the Managing Director, and shall always comply therewith, having at the same time due regard to the efficient construction and maintenance of the Railway.

A school for the education of Chinese in railway matters shall be established by the Managing Director, subject to the approval of the Viceroy.

Article 7.—Under the provisions of Article 3 of this Agreement the properties covered by the first mortgage security hereby created include the Railway, its property and equipment, and the mortgage is to be executed by a deed in the form contemplated by the said

Article. But subject to the guarantee and mortgage thus given by the Chinese Government, it is hereby declared that this Railway is in fact a Chinese property.

All land that may be required along the whole course of the Railway within survey limits, and for the necessary sidings, stations, repairing shops and car sheds, to be provided for in accordance with the detailed plans now made, or hereafter to be made by the Engineer-in-Chief, and approved by the Viceroy, shall be acquired by the Viceroy at the actual cost of the land, and shall be paid for out of the proceeds of the loan.

The title deeds of the land for the Railway and all other lands shall be free from all encumbrances and entanglements and shall, from time to time, as soon as secured, be registered in the name of the Railway.

Notices of all purchases of lands for the Railway within the survey limit (together with corresponding title deeds) are to be transmitted by the Railway Head Office under the direction of the viceroy to the local Agent of the Corporation for record and preservation in its office in Hongkong, and for the purpose of establishing the first mortgage security until the time when the same are to be returned to the Viceroy, as hereinafter in this Article provided.

All lands, the title deeds of which are lodged with the Corporation as part of the first mortgage security of the loan, shall not be disposed of in any way by hire, lease, or sale, to any party, for any purpose whatsoever, without the written consent of the Viceroy, except only in the event of the Imperial Chinese Government failing to pay the interest or principal of the bonds, and then in accordance with the powers in the deed of mortgage.

The lands thus bought shall be free from all encumbrances, liabilities, and entanglements, and shall be conveyed by full and sufficient deeds of assignment according to Chinese law, all of which are to be kept and recorded in the Hongkong Office of the Corporation, and are to be held by it as a first mortgage security for the bonds under the provisions of this Agreement, until such time as principal and interest of the bonds, together with all indebtedness, shall have been paid off, when the same shall then be returned to the Viceroy, except only in the case of the Imperial Chinese Government's failure to pay the interest or principal of the bonds and consequent realization under the powers of the mortgage security.

For the proper protection of the first mortgage security the Chinese Government undertakes that until the bonds shall have been redeemed, no part of the lands comprised in the mortgage security or the Railway with its appurtenances shall be transferred or given to another party, or shall be injured, and that the rights of the first mortgage shall not be in any way impaired, unless with the consent in writing of the Corporation, which shall only be given if in the opinion of the Corporation the interests of the bondholders will not be affected.

And further, that until the interest and principal of the loan and all the indebtedness shall have been paid off, or unless with the express consent in writing of the Corporation, the Chinese Government or the Viceroy shall not again mortgage the above properties to another party whether Chinese or foreign.

During the period of this Agreement no special taxes shall be levied by the Chinese Government on the Railway, its appurtenances, or earnings: but all taxes at present payable, such as land tax, as well as any taxes which the Chinese Government may hereafter institute, such as stamp duty, etc., and which may be applicable generally to all commercial transactions in China, shall also apply in the case of the Railway and its operations.

Article 8.—It is agreed that if the half-yearly interest on the bonds is not paid on any due date thereof, or if the principal of the loan be not paid in accordance with the amortisation schedule hereto attached, the whole Railway with all its appurtenances herein mortgaged to the Corporation for the bondholders, shall be handed over to the Corporation to be dealt with by it according to law in such manner as will ensure the proper protection of the interests of the bondholders, provided, however, that if the failure to make payment at any one date be due to causes beyond the control of the Chinese Government, and if the Viceroy request the Corporation to postpone the taking over of the Railway for a reasonable period of grace, the question shall be amicably discussed and decided between the Viceroy and the Representative of the Corporation. When the whole loan and the interest due thereon and all the indebtedness shall have been paid off, the Railway with all its appurtenances in good working condition shall revert to the possession and management of the Chinese Government according to the provisions of this Agreement.

Article 9.—As remuneration for all services rendered by the Corporation, during construction of the Railway, the Corporation shall receive the sum of £35,000, half of which shall be paid when the construction work is half completed, but not later than eighteen (18) months after commencement of construction, and the other half upon completion of the line. This amount shall be regarded as a commutation of all commissions to which the Corporation and its Agents would properly be entitled, and of payments of all services rendered in the construction and equipment of the Railway, in respect of the present loan; but in the event of any branch lines being decided upon by the Chinese Government for construction in connection with this Railway, and if the Chinese Government decide to build the same by issue of a foreign loan and not from its own resources, then the Corporation shall have the first option of tendering for such loan, and a further payment proportionate to the amount of such supplementary loan, and calculated at the same rate as the commutation hereinabove mentioned, shall be made to the Corporation as commutation of its commission for all services in respect of construction.

In return for this commuted commission, the Viceroy is entitled to require the Corporation to superintend the purchase of all materials required for the construction and equipment of the Railway, which shall be purchased in the open market at the lowest rate obtainable, it being understood that all such materials shall be of good and satisfactory quality. At equal rates and qualities, goods of British manufacture shall be given preference over other goods of foreign origin. Invoices and inspector's certificates are to be submitted to the Viceroy.

With a view to encouraging Chinese industries, Chinese Government and other materials are to be preferred, provided price and quality are suitable.

No commission shall be allowed to the Corporation on the purchase of materials except as above provided. All trade discounts or rebates, if any, are, during construction, to go to the construction account, and after completion, to the credit of the Railway.

Article 10.—In the construction of the line, in the working of the Railway and in the performance of the different kinds of business connected with the Railway, no interference or obstruction by Chinese or foreigners will be permitted. The Chinese Government will provide protection for the Railway while under construction or when in operation, and all the properties of the Railway, as well as Chinese and foreigners employed thereon, are to enjoy the utmost protection from the local officials.

The Railway may maintain a force of Chinese police with Chinese officers, their wages and maintenance to be wholly defrayed as part of the cost of the construction and maintenance of the Railway. In the event of the Railway requiring further protection by the military forces of the Imperial or Provincial Governments, the same will be duly applied for by the Head Office and promptly afforded, it being understood that such military forces shall be maintained at the expense of the Government or the Province.

Article 11.—All receipts and earnings of the Railway shall be regularly paid into the Railway's account with the Hongkong and Shanghai Banking Corporation, and on such funds, whether on daily balance or on fixed deposit, the Bank's usual rate of interest shall be allowed.

All expenses of working and maintaining the line shall be paid from the receipts and earnings, and any remainder thereof shall be charged with the service of the loan. If, after payment of these expenses, and making due provision for payment of interest at 5 per cent. per annum on the bonds, and for repayments of principal due in accordance with the amortisation schedule hereto attached, there remain surplus funds unappropriated and properly available for other purposes, such funds shall be at the disposal of the Chinese Government to be used in such manner as the Viceroy may decide, provided always that after completion and opening of the line to traffic the amount sufficient for regular payments of interest and repayments of principal shall be deducted from such surplus funds, if any, and shall be deposited with the Hongkong and Shanghai Banking Corporation six months before the date at which such payments fall due.

In the event of there being no surplus funds available as aforesaid from the earnings of the Railway, the amount required for payments of interest and repayments of principal shall be provided in accordance with the conditions of Article 14 hereinafter.

Article 12.—The Corporation are hereby appointed Trustees for the bondholders, and in any future negotiations respecting these loans, or matters arising in connection therewith, which may take place between the Viceroy and the Corporation, the Corporation shall be taken as representing the bondholders, and as such empowered to act on their behalf. In view of the fact that the Corporation's responsibility to the bondholders continues after construction, whereas, as stated in Article 9, its commuted commission for services rendered is limited to the period of construction, and the Corporation is not thereunder entitled to any further remuneration during the period of the loan, the Corporation shall receive as remuneration for its services and responsibility in acting as Trustees for the bondholders the sum of £1,000 per annum, such remuneration to commence from the date of issue of this Loan and to terminate upon its complete redemption.

Article 13.—All materials of any kind that are required for the construction and working of the Railway, whether imported from abroad or from the provinces to the scene of the work, shall be exempted from likin so long as such exemption remains in force in respect of other Chinese Railways. The bonds of this loan, together with their coupons and the income of the Railway, shall be free from imposts of any kind by the Government of China.

Article 14.—It is agreed that during the time of the construction of the Railway, the interest on the bonds and on any advances made by the Corporation is to be paid from the proceeds of the loan. The accruing interest from any proceeds of the loan not used during the period of construction, and the earnings derived by the Chinese Government from the working of any sections of the Railway as they are built, are to be used to make up the amount required for the payment of the said interest, and if any deficiency remains it is to be met from the proceeds of the loan.

When the construction of the Railway is wholly completed, the interest on the bonds is to be paid, from the income or earnings of the Railway received by the Chinese Government, every half-year on the first day of June and the first day of December.

It is hereby agreed that the amount required for the payment of interest and the repayment of principal, together with a sum of one-quarter of one per cent. on such amounts, to cover commission to the Hongkong and Shanghai Banking Corporation, who are hereby appointed Agents for the entire service of repaying the loan, shall be paid to them fourteen (14) days before the due dates in Hongkong or in Canton (at the option of the Viceroy when settling exchange) in local currency sufficient to meet such payments in sterling in London, exchange for which shall be settled with the Hongkong and Shanghai Banking Corporation, the Viceroy having the option of settling exchange at any date or dates within six (6) months previous to any due date for the repayment of interest and principal.

The Chinese Government unconditionally undertakes, and hereby promises, to pay the principal of the loan and the interest on the loan on the due dates fixed therefor. If, at any time, the earnings of the Railway together with funds available from the proceeds of the loan, are not sufficient to meet the interest on the bonds and the repayment of capital in accordance with the amortisation schedule hereto attached, the Viceroy shall devise means for supplying the deficiency; and should his inability to do so appear probable, he shall memorialise the Government to take measures to make up the deficiency from other sources, and thus be ready to pay off the indebtedness, so that the required amount may be placed in each case at least fourteen days previous to the due dates of such payments in the hands of the Hongkong and Shanghai Banking Corporation.

Article 15.—The Corporation may, subject to all its obligations, transfer or delegate all or any of its rights, powers, and discretions to its successors or assigns, but the Corporation, which is a Corporation formed under English law, shall not transfer its rights under this Agreement to any other nation, or people of any other nationality, except British or Chinese. Similarly, the Chinese Government's rights and authority under this Agreement shall not be transferred to persons of other nationality.

It is further understood that the Chinese Government will not build another line competing with this Railway to its detriment.

Article 16.—The term of the loan, as stated in Article 1, shall be thirty (30) years. Repayment of principal shall commence after the expiry of 12½ years from the date of the loan and shall be completed in 17½ years by yearly payments to the Hongkong and Shanghai Banking Corporation as Agents for the service of the loan, acting for the Corporation under the terms of this Agreement, in accordance with the amortisation schedule hereto attached.

If at any time after the expiry of 12½ years from the date of the loan, the Imperial Chinese Government should wish to redeem the outstanding amount of the loan, or any portion of it, not yet due under the provisions of the amortisation schedule hereto attached, not less than six months' notice shall be given in writing by the Viceroy to the Representative of the Corporation, declaring the number of additional bonds so required to be redeemed, whereupon the Representative of the Corporation shall immediately proceed to make such arrangements as may be necessary and usual for the redemption of the number of bonds specified, which, when duly redeemed after payment by the Imperial Chinese Government of the proper amount due thereon, shall be cancelled and delivered to the Viceroy.

All bonds thus redeemed, in excess of the amount specified in the amortisation schedule hereto attached, before the expiry of 25 years from the date of the loan, shall be paid for with a premium of 2½ per cent. over their face value (*i. e.* £102, 10s. will be required to pay for £100), but, after 25 years, bonds may be redeemed over and above the amounts specified in the schedule without premium, upon notice being given in the manner above specified.

As soon as the loan has been completely redeemed, this Agreement shall become null and void and the mortgage shall be cancelled.

Article 17.—If, during construction, any proceeds of the sale of the bonds are lying unused and bearing interest on their deposit whilst the construction of the Railway is going on, such interest is to be credited to the general account of the Railway in order that the Railway may enjoy the full advantage thereof.

It is also agreed that, if the Corporation shall think it expedient before the sale of any of the bonds to advance any money for the work, such advances, together with the interest thereon, not exceeding a charge of 6 per cent. per annum, shall be deducted from the proceeds of the sale of the bonds.

Article 18.—The junction of the sections of the Railway from Canton to the boundary of the Kowloon leased territory under British control, and from the said boundary to the port of Kowloon respectively, and the subsequent joint working of the two sections, shall be arranged by agreement between the Viceroy of Canton and the Governor of Hongkong.

Article 19.—This Agreement is signed under the authority of an Imperial Edict dated ...., which has been officially communicated to the British Minister in Peking by the Wai-wu-pu.

Article 20.—This Agreement is executed in quintuplicate in English and Chinese, one copy to be retained by the Viceroy, one by the Wai-wu-pu, one by the Board of Communications, one by the British Minister, and one by the Corporation; and should any doubt arise as to the interpretation of the Agreement the English text shall be accepted as the standard.

Signed at Peking by the contracting parties, this 23rd day of the first month of the 33rd year of the Emperor Kwang Hsu, being the 7th day of March, 1907.

Seal of Wai-wu-pu.
Signature of TANG SHAO-YI.
Witnessed by Canton Viceroy's Delegates, TAO-TAIS KUNG and HU.
For the British and Chinese Corporation,
J. O. P. BLAND.
Representative in China.
Witnessed by—
MESSRS. JARDINE, MATHESON & CO., and H. S. GARDNER, Agent H. & Sh. Bkg. Corporation.
Joint Agents, B. & C. Corporation.

SHANGHAI-HANGCHOW-NINGPO LOAN AGREEMENT.

This Agreement is made at Peking on the fourth day of the second month of the thirty-fourth year of Kuang Hsu, corresponding to the sixth day of March, 1908, and the contracting parties are:—

The Waiwupu (Board of Foreign Affairs) and

The Yuchuanpu (Board of Communications), acting under the authority of an Imperial Decree, of the one part, and the British and Chinese Corporation, Limited (hereinafter called "The Corporation") of the other part.

Article 1. The Imperial Government of China authorizes the Corporation to issue a five per cent gold loan for the amount of £1,500,000 sterling. The loan shall be of the date on which it is issued to the public and shall be called "The Imperial Chinese Government five per cent. Shanghai-Hangchow-Ningpo Railway Loan."

Article 2.—The loan is designed to provide capital for the construction of a railway line (hereinafter called "the railway") from a point connecting with the Shanghai-Nanking Railway at or near Shanghai in Kiangsu to the cities of Hangchow and Ningpo in Chekiang. The railway shall follow a line from Shanghai through Fengchingchen to Kahsingfu; and thence to Hushu and Hangchow; and thence from Chiangkan to Ningpo, on which line certain construction work has already been locally undertaken under authority of the Imperial Chinese Government.

The survey line shall be open to revision by the Yuchuanpu.

Article 3.—The Chinese Government guarantees that the capital so provided shall be solely devoted to the construction of the railway including the purchase of rolling stock and other equipment and to the working of the line during construction; it is understood, however, that the cost of the land required for the railway and the payment of interest on the Loan during construction are not to be met out of Loan funds, but will be paid by the Imperial Chinese Government from other sources. It is understood that the railway will be completed within three years from the date of signature of this Agreement; and that within a period of six months from that date the Corporation shall notify the Yuchuanpu that the sum of £100,000 has been placed at their disposal, to be held in Europe or remitted to China as they may direct, as a first instalment on account of the proceeds of the Loan. This amount of £100,000, or whatever portion thereof is actually advanced, together with interest thereon not exceeding a charge of six per cent per annum, shall be deducted from the proceeds of the sale of the bonds.

Article 4.—The rate of interest for the Loan shall be five per cent per annum on the nominal principal and shall be paid to the bondholders half-yearly. The said interest shall be calculated from the date on which the Loan is issued to the public and shall be paid by the Imperial Chinese Government during the time of construction from Chinese sources, and afterwards, in the first place out of the revenues of the railway, and should these be insufficient then from the surplus earnings of the Imperial Railways of North-China (excluding the section of the Hsinmintun-Mukden line to the East of the Liao River) and thereafter, if necessary, from such other revenues as the Chinese Government may see fit to use for the purpose, in half-yearly instalments according to the amounts specified in the schedule attached to this Agreement and fourteen days before their due dates, Western Calendar as calculated half-yearly from the date on which the Loan is issued to the public.

Article 5.—The term of the Loan shall be thirty years. Repayment of principal shall commence after the expiry of ten years from the date of the Loan, and, except as provided in Article 6 hereinafter, shall be made by yearly amortization to the Hongkong and Shanghai Banking Corporation in half-yearly instalments, out of the revenues of the railway, and should these be insufficient, then from the surplus earnings of the Imperial Railways of North-China (excluding the section of the Hsinmintun-Mukden line to the East of the Liao River) and thereafter, if necessary, from such other revenues as the Imperial Chinese Government may think fit to use for the purpose, according to the amounts specified in the schedule attached to this Agreement, and fourteen days before their due dates Western Calendar, as calculated half-yearly from the date on which the Loan is issued to the public.

Article 6.—If at any time after the lapse of ten years from the date of the Loan, the Imperial Chinese Government should desire to redeem the whole outstanding amount of the Loan, or any portion of it, not yet due for repayment in accordance with the schedule of repayments hereto attached, it may do so until the twentieth year by payment of a premium of 2½ per cent on the face value of the bonds (that is to say, by payment of £102.10|-for each £100 bond) and after the twentieth year, without premium; but in each and every case of such extra redemption the Imperial Chinese Government shall give six months' notice in writing to the Corporation, and such redemption shall be effected by additional drawings of bonds, to take place on the date of an ordinary drawing as provided for in the prospectus of the Loan.

Article 7.—The Hongkong and Shanghai Banking Corporation having been appointed by the British and Chinese Corporation, Limited, Agents for the service of the Loan, the half-yearly payments due for amortization and interest, referred to in Articles 4 and 5, shall be made in accordance with the amounts of the schedule attached to this Agreement, and fourteen days before their due dates, as fixed by Articles 3 and 5, to the Hongkong and Shanghai Banking Corporation by the Yuchuanpu or its duly appointed representative, who shall hand to the said Bank in Shanghai, fourteen days before the said due dates, funds in Shanghai sycee sufficient to meet such payments in sterling in London, exchange for which shall be settled with the Bank; the Yuchuanpu, or its duly appointed representative, having, however, the option of settling exchange with the Bank at any date or dates within six months previous to any due date for the repayment of interest and principal. These payments may, however, be made in Gold if the Imperial Chinese Government should happen to have Gold funds "bona-fide" at their disposal in Europe, not remitted from China for the purpose, and desire so to use them.

In reimbursement of expenses connected with the payment of interest and the repayment of principal of the Loan, the Hongkong and Shanghai Banking Corporation will re

ceive a commission of one quarter per cent on the annual Loan service.

Article 8.—The Imperial Government of China hereby engages that the interest and principal of this Loan shall duly be paid in full, and should the revenues of the Railway, together with the surplus earnings of the Imperial Railways of North China (excluding the section of the Hsinmintun-Mukden line to the East of the Liao River), not be sufficient to provide for the due and full payment of interest and repayment of principal, the Yuchuanpu shall memorialize the Throne and the Imperial Government of China will thereupon make arrangements to ensure that the amount of deficiency shall be met from other sources and handed over to the Bank at the date upon which funds are required to complete full payment of interest and repayment of principal.

Article 9.—The Loan is hereby secured upon the surplus earnings of the Imperial Railways of North-China (excluding the section of the Hsinmintun-Mukden line to the East of the Liao River), that is to say, that after deducting from the net earnings of that railway the amounts required to meet the payments of interest and repayments of principal due in terms of the Agreement of October 10, 1898, (Kuang Hsu 24th year, 8th moon, 25th day) to the bondholders of the Imperial Chinese Government Loan of that year, then the payment of interest and repayment of principal of the present Loan shall be a first charge upon the said surplus earnings of the Imperial Railways of North-China (excluding the section of the Hsinmintun-Mukden line to the East of the Liao River) and no deductions or payments shall be made from the earnings of the said railway other than those required to meet the obligations stated in the Loan Agreement of October 10, 1898, (Kuang Hsu 24th year, 8th moon, 25th day) until an amount sufficient to pay the next half-yearly instalment of interest and principal of the present Loan shall have been placed on deposit with the Hongkong and Shanghai Banking Corporation as security for the due payment of the same.

Article 10.—The Corporation is hereby authorized to issue to subscribers to the Loan, bonds for the total amount of the Loan for such amounts as may appear advisable to the Corporation. The form of the bonds shall be settled by the Corporation in consultation with the Yuchuanpu or its duly authorized representative or with the Chinese Minister in London. The bonds shall be engraved in Chinese and English; they shall bear the facsimile of the signature of the Yuchuanpu's duly authorized representative and of his seal of office (in order to dispense with the necessity of his signing them all in person), but the Chinese Minister in London shall, previous to the issue of any bonds, put his seal upon each bond with a facsimile of his signature as a proof that the issue and sale of the bonds are duly authorized by, and binding upon, the Imperial Chinese Government, and the representative of the Corporation in London shall countersign the bonds as agents for the issue of the Loan.

If any of the bonds herein mentioned are lost or destroyed a reissue of any thereof is to be made in the amounts respectively called for by such lost or destroyed bonds, but proper proof of the loss or destruction must be given in the usual form to the Corporation and the Chinese Minister in London for examination and record and the requisite guarantee is to be obtained by the Corporation from the respective claimants concerned, who shall defray all expenses connected with such reissue of bonds lost or destroyed and who under the said guarantee shall undertake to indemnify the Imperial Chinese Government and or the Corporation for any loss sustained by reason of the issue of bonds in the place of bonds lost or destroyed.

Article 11.—All bonds and coupons and payments made and received in connexion with the service of this Loan shall be exempt from all Chinese taxes and imposts during the currency of this Loan.

Article 12.—All details necessary for the prospectus and connected with the payment of the interest and repayment of the principal of this Loan not herein explicitly provided for shall be left to the arrangement of the Corporation in consultation with the Chinese Minister in London. The Corporation is hereby authorized to issue the prospectus of the Loan as soon as possible after the signing of this Agreement and the Imperial Government will instruct the Chinese Minister in London to co-operate with the Corporation in any matters requiring conjoint action and to sign the prospectus of the Loan.

Article 13.—The Loan shall be issued to the public in one series of bonds, as soon as possible after signature of this Agreement and not later than twelve months from the date thereof. The price to the Imperial Chinese Government shall be 93% of the nominal value of the bonds. Subscriptions will be invited by the Corporation in England and in China both from Chinese and Europeans on equal conditions, preference being given to the application by the Chinese Government provided that such application be made before the issue of the prospectus to the public.

Article 14.—The proceeds of the Loan shall be paid to the credit of the Yuchuanpu with the Hongkong and Shanghai Banking Corporation in China or London as the case may be. Payments of the Loan proceeds into the credit of this account shall be made in instalments and on dates conforming to the conditions allowed to the subscribers to the Loan. Interest at the rate of four per cent per annum shall be granted on the credit balance of the portion of this account kept in London; and interest on the credit balance of the portion kept in China will be allowed at the Bank's rates for current account or fixed deposits, as the case may be, to be arranged.

The Bank will hold the net proceeds of the Loan with accrued interest to the order of the Yuchuanpu, or its duly authorized representative, who, in ordering payment of any sums exceeding £20,000, shall give notice to the Bank ten days before the day on which they are required. Requisitions on the Loan funds will be drawn in amounts to suit the progress of construction of the Railway by orders on the Hongkong and Shanghai Banking Corporation, signed by the Yuchuanpu or its duly authorized representative, and accompanied by his certificates or those of the said Board stating the nature and cost of the work to be paid for.

Such amounts as may be required for expenditure in China may be transferred under the instructions of the Yuchuanpu, at their discretion, to Shanghai, the transfers being effected through the Hongkong and Shanghai Banking Corporation, and the transferred funds shall remain on deposit with that Bank until required for railway purposes.

The Yuchuanpu will cause to be published annually, upon the close of the Railway's financial year, a report in the Chinese and English languages showing the working accounts and traffic receipts of the Railway, which report shall be procurable by the public on application.

Article 15.—If, during the time of construction the net proceeds of the present Loan with accrued interest should not be sufficient to complete the construction and equipment of the Railway line, the amount of deficiency shall be provided in the first place from such Chinese funds as may be available so as to permit of the uninterrupted continuance of the work of construction, any balance then uncovered being supplemented by a further foreign loan for the amount required, to be issued by the Corporation. The interest and other conditions of such supplementary Loan will be the same as in the present agreement, and the price payable to the Imperial Chinese Government will be the actual rate of its issue to the public less flotation charges of 5½ points retainable by the Corporation, that is to say, £5. 10/- for every £100 bond issued.

If, after completion of the line, there should remain a balance of Loan funds at the credit of the Railway account, such unused balance shall be at the disposal of the Yuchuanpu to be used either for the purpose of paying interest on the Loan or for the equipment of the Railway, or for the construction and equipment of branch lines beneficial to the Railway.

Article 16.—If, before the publication of the prospectus for the issue of the Loan, any political or financial crisis should take place by which the market and the prices of existing Chinese Government stocks are so affected as to render in the opinion of the Corporation the successful issue of the Loan impossible on the terms herein named, the Corporation shall be granted further extension of time, but not beyond eighteen months from the date of this Agreement, for the performance of their contract. If, within this time limit the Loan shall not have been issued, this contract shall become null and void, and any advances made by the Corporation under the provisions of Article 3 shall be repaid by the Chinese Government with accrued interest, but without any other compensation or remuneration whatsoever.

Article 17.—The construction and control of the Railway will be entirely vested in the Imperial Chinese Government. For the work of construction the Yuchuanpu, or its duly appointed Managing Director, will select and appoint a British Chief Engineer, who shall be a professional man of established reputation to be selected either in England or from the staff of one of the existing Chinese Government Railways. The Chief Engineer will be under the orders of the Managing Director, or, in his absence, of his duly authorized representative. In his general conduct he shall pay all due respect to the Managing Director. The terms of the Chief Engineer's agreement will be arranged by the Yuchuanpu or its duly appointed Managing Director.

Whenever appointments are to be made or functions are to be defined of the technical employees on the Railway staff, as well as in the case of their dismissal, the Managing Director, or in his absence, his duly appointed representative, will act in consultation with the Chief Engineer and, in the case of disagreement, the matter will be referred to the Yuchuanpu, whose decision shall be final. After completion of construction the Imperial Chinese Government will retain the services of an Engineer-in-Chief who during the period of the Loan shall be a British subject.

Article 18.—During the construction of the Railway the Corporation will act as its Agents for the purchase of all materials, plant and goods required to be imported from abroad. For all important purchases of such materials, tenders shall be called for by the Managing Director; in the case of all tenders, indents and orders for the importation of goods and materials required on the terms most advantageous to the Railway. It is understood that no orders for materials shall be executed or any expenditure incurred without due authorization by the Managing Director.

As remuneration for its services as Agents of the Railway during construction, the Corporation shall receive the sum of £35,000, half of which shall be paid when the construction work is half completed but not later than eighteen (18) months from the date of this agreement, and the other half upon completion of the line. This amount shall be regarded as commutation of all commissions to which the Corporation and its Agents would properly be entitled and of payments for all services rendered in the construction and equipment of the Railway in respect of the present Loan; but in the event of a further Loan being required under the provision of Article 15 hereinabove, then a further payment of commuted commission, proportionate to the amount of such supplementary Loan and calculated at the same rate as the commutation hereinabove mentioned, shall be made to the Corporation as commutation of its commission for all services in respect of construction.

In return for this commuted commission the Corporation as Agents shall be prepared to superintend the purchase of all foreign materials required for the construction and equipment of the Railway which shall be purchased in the open market at the lowest rate obtainable, it being understood that all such materials shall be of good and satisfactory quality. At equal rates and qualities goods of British manufacture shall be given preference over other goods of foreign origin. The Managing Director shall have the right, while paying the above stipulated commutation of commission to the said Agents, in respect of all purchases of foreign materials, to avail himself of the services

of other Agents in China or abroad should he see fit to do so.

Original invoices and inspectors' certificates are to be submitted to the Managing Director; all return commissions and rebates of every description shall be credited to the Railway; and all purchases made by the Agents on behalf of the Railway shall be supported by manufacturers' original invoices and inspectors' certificates.

No commission shall be paid to the Agents except as above provided; but it is understood that the Yuchuanpu or its duly authorized representative shall provide out of Railway funds for the remuneration of Consulting Engineers whenever their services are required for general assistance and advice or for the inspection abroad of materials requiring supervision of technical experts.

With a view to the encouragement of Chinese industries, preference shall be given, at equal prices and qualities, over British and other foreign goods, to Chinese goods and materials manufactured in China. No commission will be paid on purchases of such materials and goods.

It is understood and agreed that after the construction of the line is completed, the Corporation will be given the preference for such Agency business during the currency of the Loan for the supply of foreign materials as may be required for the Railway, on terms to be hereafter mutually agreed upon.

Article 19.—Branch lines in connexion with the Railway mentioned in this Agreement, that may appear profitable or necessary later on, shall be built by the Imperial Chinese Government with funds at their disposal from Chinese sources, and if foreign capital is required, preference will be given to the Corporation.

Article 20.—By the preliminary agreement dated October 15, 1898 (Kuang Hsu 24th Year, 9th Moon, 1st Day) participation of twenty per cent of the net profits of the Railway had been promised to the Corporation in remuneration for their general responsibility and services. In commutation of this participation in net profits, the Corporation is granted the right to retain £67,500 out of the proceeds of the Loan in instalments and on dates in proportion to, and based on, the terms of subscription to the Loan, as stated in the prospectus. No further payment in respect of commutation of profits will be allowed on any supplementary Loans.

Article 21.—After payment of interest and repayment of principal of the Loan for any current year, the Yuchuanpu shall deposit with the Hongkong and Shanghai Banking Corporation in Shanghai any surplus of the net revenue of the Railway line for that year up to the amount required to pay the following year's instalments of interest on the loan; the rate of interest on the deposit being arranged with the Bank from time to time with due regard to the conditions of the market.

Article 22.—The Corporation may, subject to all its obligations under this Agreement, transfer or delegate all or any of its rights, powers or discretions thereunder to any British Company, Director or Agent, with power of further transfer and subdelegation, such transfer, subtransfer, delegation or subdelegation, to be subject to the approval of the Yuchuanpu.

Article 23.—This Agreement is signed under authority of an Imperial Decree of this date which has been officially communicated to the Minister of Great Britain in Peking by the Waiwupu.

Article 24.—Three sets of this agreement are executed in English and Chinese, two sets to be retained by the Imperial Chinese Government and one by the Corporation; in the event of any doubt arising regarding the interpretation of the contract the English text shall rule.

Signed at Peking by the contracting parties this fourth day of the second month of the thirty-fourth year of the Emperor Kuang Hsu, being the sixth day of March nineteen hundred and eight.

Signed,
HU HUI-TE,
LIANG SHING-YI,
KAO ERH-CH'IEN.

[Seal of Waiwupu].

For the British and Chinese Corporation, Ltd.,
J. O. P. BLAND,
Representative in China.

PRELIMINARY AGREEMENT BETWEEN THE HONGKONG AND SHANGHAI BANKING CORPORATION AND DIRECTOR-GENERAL HU, RESPECTING THE PEKING-NEWCHWANG RAILWAY LOAN.

This is a preliminary Agreement made between his Excellency HU, Governor of Peking and Administrator-General of the Imperial Railways of North China within and without the Great Wall, hereinafter called the Administrator-General, of the one part; and the Hong Kong and Shanghai Banking Corporation, representing a British Syndicate, hereinafter called the Syndicate, of the other part.

1.—The Syndicate is hereby authorized by the Administrator-General to make arrangements to float and issue, on behalf of the Railway Administration, on the best terms obtainable on the market, a sterling loan for the equivalent of about 16,000,000 taels, for the construction of railway line from Chung-hou-sou to Hsin Ming-tien, and a branch line to Yingtzu, and for the redemption of existing loans to the Tientsin-Shan-hai-kuan and Tientsin-Lu-kou-chiao lines.

2.—The security for the loan shall be the permanent way, rolling-stock, and entire property, together with the freight and earnings of the existing lines between Peking, Tientsin, Tangku, and Chung-hou-sou, and also of the proposed new lines when constructed, in addition to the rights of mining coal and iron, which will be retained by the Railway Administration on each side of the proposed new lines, for a distance to be determined. In the event of default or arrears in payment of interest or payments of principal, the said railway lines and mines shall be handed over to representatives deputed by the Syndicate, to manage them on their behalf, until principal and interest of the loan are redeemed in full, when the management will revert to the Railway Administration.

It will, however, be provided that if such arrears are for a small sum, and it appears desirable to the Syndicate to extend the due date of their payment for a term not exceeding three months, it shall be open to the syndicate to do so.

In the event of any special circumstances arising, necessitating the introduction of important changes by the management aforesaid, these changes shall be effected in consultation with the Administrator-General, and in the best interests of the railway. In the case of war or famine, troops and grain will be transported over the line on terms to be arranged hereafter.

No further loan, charge, or mortgage shall be charged on the security named above until this loan is redeemed.

3.—During the currency of the loan the principal members of the railway staff shall be capable and experienced Europeans, who shall be, as at present, appointed by the Administrator-General of the Railway, and may be, in the event of their misconduct or incompetency, dismissed, after consultation with the Chief Engineer. If there are Chinese, with sufficient engineering or traffic experience, they may be appointed as well as Europeans. Should it be necessary to appoint a new Chief Engineer, such appointment shall be made in consultation with the Syndicate.

In addition to above, a capable and experienced European Railway Accountant shall be appointed to inspect all the accounts of the railways.

All receipts and earnings of the lines herein specified shall be paid into the credit of the Railway Administration with the Hong Kong and Shanghai Banking Corporation, Tientsin, together with 50,000 taels annually payable under the Board of Revenue's arrangement, approved by the Throne, by each of the provinces of Shansi, Shensi, Honan, and Anhui, for railway purposes for ten years.

All expenses of repairing and maintaining lines will be paid from this account, the remainder of which shall then be charged with the service of this loan.

4.—The rate of interest, price, term of years, and other particulars shall be left to the Syndicate to arrange, on the best terms possible, on the market, when the moment appears favorable for floating the loan. Instalments of proceeds will be arranged as far as possible to suit the progress of construction and the requirements of the Administrator-General, interest being calculated from the date of such payments. The loan will be redeemable by annual drawings to be scheduled in the final agreement. Besides the drawings so scheduled the Administrator-General may from time to time, on giving due notification to the Syndicate, call for extra drawings to be held, bonds so drawn being redeemed by the Railway Administration at 20 per oent. premium on their par value.

5.—If it shall be found that the loan cannot be floated without the introduction of some special attraction, the Administrator-General shall memorialise the Throne, recommending that a concession of mining rights be granted to the Syndicate at a point or points on the lines, and on terms to be arranged with the Syndicate on the basis of the Mining Regulations newly established by the Tsung-li Yamen. The requests of the Syndicate will be confined to mines within a distance of 5 li of the railway.

6.—The date of issue of this loan shall be left to the discretion of the Syndicate, to be fixed in accordance with the state of the market, but should it be found impossible to issue it before the 1st day of October next, the Syndicate will arrange to advance to the Administrator-General, on or about that date, an instalment of about 2,000,000 taels on account of, and repayable out of the proceeds of the loan when floated. The terms of this advance shall be left to the arrangement of the Syndicate on the best terms obtainable, interest not to exceed the rate of 5½ per cent. per annum, and the Syndicate shall be authorized to issue temporary bonds for the amount if required.

7.—For the satisfaction of the investing public who are unacquainted with China a satisfactory report will be required from District Engineer, Mr. J. Ginnell, as to the condition and earning power of the old lines, and as to the route, prospects, and mineral wealth of the new lines to be constructed, and Mr. Ginnell shall be instructed by the Administrator-General to proceed to London as soon as possible after the signing of this preliminary Agreement, to confer with the Syndicate on these matters.

8.—The terms of this preliminary Agreement will, immediately after signature, be submitted by the Administrator-General to the Throne for sanction by Imperial Edict, which shall be officially communicated by the Tsung-li Yamen to the British Minister in Peking.

9.—Three months from the date of signature of this preliminary Agreement shall be allowed to the Syndicate to accept or decline its terms. Upon their confirmation by the Syndicate this preliminary Agreement shall be replaced by a definitive Agreement, providing for all details.

Signed at Peking, this 7th day of June 1898, being the 19th day of the 4th moon of the 24th year of the Emperor Kuang Hsu.

(Seal of Administrator-General of Railways within and without the Shan-hai-kuan boundary.

For the Hong Kong and Shanghai Banking Corporation,
(Signed) E. G. HILLIER, *Agent.*

DEFINITIVE AGREEMENT BETWEEN THE BRITISH AND CHINESE CORPORATION (LIMITED) AND DIRECTOR-GENERAL HU RESPECTING THE PEKING-NEWCHWANG RAILWAY LOAN.

This agreement is made between His Excellency Hu, Governor of Peking, as Administrator-General of the Railways of North China within and without Shan-hai-kuan, acting under the authority of the Imperial Chinese Government, hereinafter called the "Administrator-General," of the one part, and the Hong Kong and Shanghai Banking Corporation, for themselves and on behalf of the British firm of Jardine, Matheson & Co., representing as joint agents the British and Chinese Corporation (Limited), hereinafter called the "Corporation" of the other part:

Whereas, on the 7th day of June 1898, being the 19th day of the 4th month of the 24th year of the Emperor Kuang Hsu, a preliminary Agreement was signed at Peking between the Administrator-General and the Hong-Kong and Shanghai Banking Corporation, representing a British Syndicate, for a sterling loan for the equivalent of about 16,000,000 taels, for the construction of a railway line from Chung-hou-sou to Hsin-ming-ting and a branch line to Ying-tzu, and for the redemption of existing loans made to the Tientsin-Shan-hai-kuan and Tientsin-Lu-kou-chiao Railway lines: and

Whereas in terms of the preliminary Agreement a period of three months from its date was allowed to the Syndicate to accept or decline its conditions: and

Whereas the Hong Kong and Shanghai Banking Corporation, before the expiration of the period named, duly notified the Administrator-General that it is prepared, with certain modifications, to arrange the issue of the loan upon the conditions named in the preliminary Agreement:

1.—The Corporation agrees to issue on behalf of the Administrator-General a sterling loan for the amount of £2,300,000, the proceeds of which are to be applied in the order following:—

(1).—To the redemption forthwith or at maturity of the loans and advances specified in the statement attached to this Agreement which have been made by foreign banks to the Tientsin-Shan-hai-kuan and the Tientsin-Lu-kou-chiao Railway lines. The Administrator-General hereby certifies that the total amount of the liabilities due by the lines named does not exceed the sum of 3,000,000 taels.

(2).—To the carrying out, within a period of three years from the date of this Agreement, of certain improvements and additions to rolling-stock on the existing lines between Peking and Shang-hai-kuan, recommended by the European Chief Engineer, and estimated by him to cost about 1,500,000 taels.

(3).—To the construction of a railway line from Chung-hou-so to Hsin-ming-ting, and one from a point on that line near Shih-san-chan to Ying-tzu, and of a branch line from Nu-erh-ho to the collieries of Nanp'iao.

The Administrator-General engages that the construction of the new lines here specified shall be completed within a period of three years from the date of this Agreement.

2.—In the event of the proceeds of this loan being insufficient for the completion of the new lines here specified, the Administrator-General will provide or will arrange with the Imperial Government of China to provide funds from other sources sufficient to complete their construction.

3.—This loan shall be a first charge upon the security of the permanent way, rolling-stock, and entire property, with the freight and earnings of the existing lines between Peking and Shan-hai-kuan, and on the freights and earnings of the new lines when constructed. The Administrator-General shall, during the continuance of this loan, maintain the railway buildings, works, rolling-stock, and dependencies in good order and condition, and shall increase the rolling-stock from time to time to such extent as shall be necessary for the requirements of the traffic.

Should it be decided hereafter to construct branch lines or extensions connecting with the lines herein named, their construction shall be undertaken by the Railway Administration, and should the funds of the Railway Administration be insufficient for that purpose, it shall apply to the Corporation for the same.

4.—The principal and interest of this loan are guaranteed by the Imperial Government of China, and in the event of default in pay ent of interest or repayment of principal at due date, the Corporation shall immediately notify the Imperial Government of China thereof, and the Imperial Government of China will thereupon provide the funds necessary to meet such payment in sterling in London. In the event of the Imperial Government of China being unable to provide the funds necessary to meeting a payment of interest or principal when called upon by the Corporation to do so, in terms of this clause, the said railway lines and entire property shall thereupon be handed over to representatives deputed by the Corporation to manage, on their behalf, until principal and interest of the loan have been redeemed in full, when the management will revert to the Railway Administration. It is provided that should arrears of interest or principal be for a small sum, and it appear desirable to the Corporation to extend the due date of their payment for a term not exceeding three months, it shall be open to the Corporation to do so.

This arrangement, which differs from other contracts in that the Administrator-General retains control of the railway lines so long as the principal and interest of this loan are regularly paid, has been agreed to in consequence of the friendly relations which have long existed between the Contracting Parties.

5.—No further loan shall be charged upon the security named above, except through the Corporation, until the loan is redeemed; and the Tsung-li Yamen will hand to the British Minister in Peking a written undertaking on behalf of the Imperial Government of China, that the railway lines named in this Agreement shall never be alienated or parted with.

6.—During the currency of this loan the Chief Engineer of the railways shall be a British subject. The principal members of the railway staff shall be capable and experienced Europeans, who shall be, as at present, appointed by the Administrator-General of the Railways, and may be, in the event of their misconduct or incompetency, dismissed after consultation with the Chief Engineer.

If there are Chinese with sufficient engineering or traffic experience they may be appointed as well as Europeans.

Should it be necessary to appoint a new Chief Engineer; such appointment shall be made in consultation with the Corporation.

In addition to the above, a capable and efficient European Railway Accountant shall be appointed, with full powers to organize and direct the keeping of the railway accounts, and to act with the Administrator-General and the Chief Engineer of the railway in the supervision of receipts and expenditure.

7.—The railway lines named in the Agreement being Imperial Government lines, in the event of war or famine, Chinese Government troops and grain may be transported over the lines free.

8.—All receipts and earnings of the lines herein specified shall be paid into the credit of the Railway Administration with the Hong Kong and Shanghai Banking Corporation, Tientsin, together with 50,000 taels annually, payable under the Board of Revenue's arrangement approved by the Throne, by each of the provinces of Shansi, Shensi, Honan, and Anhui, for railway purposes for ten years.

All expenses of working and maintaining the lines will be paid from their receipts and earnings, the remainder of which, together with the provincial funds above named, shall then be charged with the service of this loan. Payments of interest and repayments of principal shall be made in equal monthly instalments, and in accordance with the amounts and dates of a yearly schedule which will be furnished to the Administrator-General by the bank. These payments shall be made by the Administrator-General to the Hong Kong and Shanghai Banking Corporation, Tientsin, in Hongping sycee sufficient to provide the sterling amount due to the bondholders in terms of the prospectus of the loan, the rate of exchange for these payments being fixed by that bank as each such payment becomes due. In reimbursement of expenses incurred in connection with the distribution of the service to the bondholders of the principal and interest of the loan, the Hong-Kong and Shanghai Banking Corporation, Tientsin, shall receive from the Railway Administration a commission of ¼ per cent. on the annual loan service, which will be included in the yearly schedule for the same.

9.—The term of the loan shall be forty-five years, and, subject to the modification mentioned hereinafter, repayment of principal shall be made, so far as regards the bondholders, in forty equal annual instalments, commencing with the sixth year.

10.—Interest on the loan shall be charged at the rate of 5 per cent. per annum on the nominal principal, and shall be calculated on the balance of such principal at any time outstanding, payments of interests being made by the Administrator-General in accordance with the amounts and dates specified in the yearly Schedule to be provided.

11.—The loan will be redeemed by annual drawings in London as provided for in the prospectus. Besides the drawings as provided for, the Administrator-General may, on giving three months notice to the Corporation, call for extra drawings to be held for any amount. Bonds so drawn to be redeemed by the Railway Administration at 20 per cent. premium on their par value. Any such extra drawings must take place on the date of the ordinary drawing provided by the prospectus.

In the event of such extra drawings taking place, subsequent payments of interest will be adjusted in the Yearly Schedule to be provided, but the repayments of principal shall continue unaltered in terms of clause 9 of this Agreement until the loan is redeemed.

The Imperial Government of China hereby engages that this loan shall not be redeemed or converted otherwise than as herein provided.

12.—The price agreed upon for this loan is 90 per cent. net of the nominal principal, but should an unfavorable state of the market prevail at the time of issuing the prospectus the Corporation is hereby authorized to reduce the price of the loan, at its own discretion, to not less than 88 per cent. net to the Railway Administration.

13.—The Corporation are hereby authorized to issue to subscribers to the loan bonds for the total amount of the loan in pounds sterling, in such form and for such amounts as shall appear desirable to the Corporation, and the Minister for China in London will seal all such bonds with his official seal, as evidence that the Imperial Government of China is bound thereby. Each such bond shall bear the following clause:—

"The Imperial Government of China, pursuant to an Imperial Edict, dated............, unconditionally guarantees and declares itself responsible for the payment of the principal moneys and interest hereby secured, and in faith thereof it has specially authorized the Chinese Minister in London to seal this bond with his official seal."

14.—All bonds and coupons and payments made and received in connection with this loan shall be exempt from Chinese taxes and imposts for ever.

15.—All details necessary for the prospectus and connected with the service to the bondholders of the interest and repayment of principal of this loan, not herein explicitly provided for, shall be left to the arrangement of the Corporation, who are hereby authorized to issue a prospectus of the loan as soon as possible after the signing of this Agreement.

The Tsung-li Yamen will instruct the Chinese Minister in London to co-operate with the Corporation in any matters requiring conjoint action.

16.—The loan shall be issued to the public as soon as possible after the signing of this Agreement, and shall date from the first day of the month of its issue. Payment of the entire proceeds will be made in London to the order of the Administrator-General not later than the 31st day of March 1899; of the above

proceeds the Corporation will advance to the order of the Administrator-General in London, on or before the 31st day of October next, the sum of £250,000; this advance will bear interest at the rate of 5½ per cent. per annum until such time as the first instalment of the loan proceeds shall be available, when it shall be deducted from those proceeds by the Corporation.

17.—In the event of an unfavorable state of the market rendering the issue of this loan, and the payment of its proceeds to the Railway Administration impossible on the terms named without loss to the Corporation, the Corporation shall be granted such extension of time for the performance of its contract with the Administrator-General as the circumstances demand, any advances or instalments of proceeds already made to the Railway Administration being in that case treated as regards payment of interest, repayment of principal, security, and Imperial Chinese Government guarantee in terms of this present Agreement, and as forming part of the principal amount of this loan. Similar extension of time for the issue of this loan and payment of its proceeds shall also be granted in the event of the Deutsche-Asiatische Bank, Berlin, objecting to its issue before the month of April next, in accordance with the terms of clause 9 of the Agreement for the Chinese Imperial Government 4½ per cent. Sterling Loan of 1898.

18.—Immediately after the signature of this Agreement, and before the issue of the prospectus of the loan to the public, the Administrator-General will memorialise the Throne and obtain an Imperial Edict confirming and sanctioning the provisions of this Agreement, the Imperial Edict so received being then communicated officially and without delay by the Tsung-li Yamen to the British Minister in Peking.

19.—The Corporation may, subject to all its obligations, transfer or delegate all or any of its rights and discretions to any British Company, Directors, or Agents, in consultation with the Administrator-General, with or without power of further transfer and sub-delegation.

20.—This Agreement is executed in quadruplicate in English and Chinese, one copy to be retained by the Administrator-General, one by the Tsung-li Yamen, one by the British Minister in Peking, and one by the Corporation. Should any doubt arise as to the interpretation of the contract, the English text shall be accepted as the standard.

Signed at Peking by the Contracting Parties this 25th day of the eighth month of the twenty-fourth year of the Emperor Kuang-Hsu, being the 10th day of October 1898, Western Calendar.

GREAT BRITAIN AND GERMANY

TIENTSIN-CHINKIANG (NOW NANKING) RAILWAY; PRELIMINARY AGREEMENT.

This Preliminary Agreement relating to the construction of railways between Tientsin and Chinkiang, is made between their Excellencies Hsu and Chang; duly authorized to act on behalf of the Imperial Government of China, hereinafter called "the Imperial Directors" of the one part; and (*a*) the Deutsche-Asiatische-Bank; (*b*) the Hongkong and Shanghai Banking Corporation for themselves and on behalf of Messrs. Jardine, Matheson & Co., as joint agents for the British and Chinese Corporation Limited, hereinafter called "the Syndicate" of the other part.

1. The Imperial Government of China authorizes the Syndicate to issue an Imperial Government 5 per cent. gold loan for an amount of about £7,400,000, this amount being subject to modification later after the completion of survey.

2. The loan is designed to provide the capital for the construction of Government railway lines from a point at or near Tientsin, through Titchow and Tsianfu to Thsien near the southern frontier of Shantung, hereinafter known as the northern part of the Tientsin-Chinkiang Railway lines, and from Thsien to Kuachao (Chinkiang) on the Yangtze Kiang, hereinafter known as the southern part of the Tientsin-Chinkiang Railway lines, the total length of these lines being bout 982 kilom., equal to about 1,800 Chinese li.

3. The capital so provided will include the funds required for rolling-stock and other equipment, and for working the lines, together with interest on the loan during the period of construction, which is estimated to occupy about five years from the date of the loan, but which will finally be fixed after survey.

4. The rate of interest for the loan shall be 5 per cent. per annum on the nominal principal, and shall be paid during the time to be fixed for the construction out of the proceeds of the loan, and afterwards out of the revenue of the lines named, in half-yearly instalments, according to the amounts and dates of a schedule which will be attached to the Final Agreement.

5. The term of the loan shall be fifty years. Repayment of principal shall commence in the eleventh year from the date of the loan, and shall be made by a yearly sinking fund in shares to be determined in the Final Agreement to the Deutsche-Asiatische Bank, and the Hongkong and Shanghai Banking Corporation in yearly instalments out of the revenue of the lines according to the amounts and dates of the schedule to be attached to the Final Agreement.

6. In the event of the Imperial Government of China wishing to redeem, after the lapse of thirty years from the date of the loan, the outstanding amount of the loan, or any portion of it not yet due, from funds *bona fide* belonging to the Chinese Government or subscribed by Chinese merchants, the conditions for such redemption must first be arranged with the Syndicate when the time arrives.

7. The yearly payments due for amortization and the half-yearly payments due for interest, except as otherwise provided in Clause 4, shall be made in accordance with the amounts and dates of a schedule to be attached to the Final Agreement, in shares to be determined by the Final Agreement, out of the joint net revenues of the railway lines to the Deutsche-Asiatische Bank and the Hongkong and Shanghai Banking Corporation by the Boards of Commissioners hereinafter mentioned, who shall hand to those banks, at their branches in Shanghai, twenty-one days before the due date named in the schedule, funds in Shanghai sycee sufficient to meet such payment in sterling in Europe, the rate of exchange for which shall be settled with those two banks on the same day on a fair basis.

In reimbursement of expenses connected with the service of interest and principal of the loan, the two banks will receive a commission of ¼ per cent. on the annual loan service.

8. The Imperial Government of China hereby engages that the interest and principal of this loan shall duly be paid in full, and should the revenues of the railways not be sufficient to provide for the due and full payment of interest and repayment of principal of this loan the Imperial Directors must memorialize the Throne, and the Imperial Government of China will then make arrangements to ensure that the amount of deficiency shall be met from other sources and handed over to the banks twenty-one days before the due date of the funds required to complete full payment of interest and repayment of principal.

This clause to be open to reconsideration in the Final Agreement.

9. This entire loan shall be secured by a first mortgage on the permanent way, rolling-stock, and entire property, together with the revenue of the lines named in Clause 2. No further loan, charge, or mortgage shall be charged on this security, except with the written consent of the two banks, until the present loan is returned. In the event of default in payment of interest or repayment of principal of this loan on due date the railway lines and property so mortgaged shall be handed over to the Syndicate, to be dealt with in such a manner as may be legal and necessary for the full and effective protection of the bondholders. When the loan is completely redeemed, Clause 29 of this Agreement shall take effect.

10. The Syndicate will be authorized to issue to the subscribers to the loan, bonds for the total amount of the loan in pounds sterling in such form, in such languages, and for such amounts as shall appear advisable to the Syndicate, and these bonds shall be sealed in China by the Imperial Directors and in Europe by the Minister for China, in Berlin or London, as evidence that the Imperial Government of China is bound thereby as debtor of the loan. Provision will be made in the Final Agreement for the case of bonds lost, stolen, or destroyed.

11. All bonds and coupons and payments made and received in connection with the service of this loan shall be exempt from all Chinese taxes and imports for ever.

12. All details necessary for the prospectus and connected with the service of the interest and repayment of the principal of this loan, not explicitly provided for by the Final Agreement, shall be left to the arrangement of the Syndicate, who will be authorized to issue a prospectus of the loan as soon as possible after the signing of the Final Agreement.

The Imperial Government of China will instruct the Chinese Ministers in Berlin and London to co-operate with the representatives of the Syndicate in any matters requiring conjoint action, and the Chinese Minister in Berlin will sign the prospectus of the loan as required by the Rules of the Berlin Stock Exchange.

13. The loan shall be floated in one or more series at the discretion of the Syndicate, due regard being had to the interest of China; but the floating of the loan shall not be delayed more than necessary, subscriptions being invited by the Syndicate in Europe and in China from both European and Chinese on equal conditions.

14. The price of the loan shall be 90 per cent. net on the nominal principal to the Chinese Government. The proceeds of the loan shall be paid to the credit of a Tientsin-Chinkiang Imperial Government Railway account with the Hongkong and Shanghai Banking Corporation, London. The payment into the credit of these accounts shall be made in such instalments and on such dates as the conditions allowed to the subscribers to the loan shall admit.

Interest at a rate to be arranged from time to time shall be granted on the credit balance of the railway accounts.

After deduction of the funds required for the service of interest and for commission on this service during the time of construction, the Deutsche-Asiatische Bank will hold the proceeds with accrued interest to the order of the Board of Commissioners appointed for the northern part of the Tientsin-Chinkiang Railway lines, and the Hongkong and Shanghai Banking Corporation will hold the proceeds with accrued interest to the order of the Board of Commissioners appointed for the southern part of the Tientsin-Chinkiang Railway lines. The Commissioners, in drawing the sums necessary for the construction, shall give notice to the banks fourteen days before the day on which they are required.

15. If during the time of construction the whole amount of the instalments with accrued interest to be paid by the Syndicate should, after deduction of the sums necessary for the service of interest on the loan, not be sufficient for the construction of the railway lines, the amount of deficiency shall be provided by a supplementary loan to be issued by the Syndicate, the interest and other conditions of which are to be the same as in this Agreement, but the price must be arranged when the time arrives.

If after the completion of the lines there should be a balance at credit of the Tientsin-Chinkiang Railway account, the Syndicate shall transfer such unused balance to the credit

of the loan service reserve fund, hereinafter mentioned as a provision for payments to which the Government is bound by Clause 8 of this Agreement.

16. If before the publication of the prospectus for the issue of the loan any political or financial crisis should take place in Europe or elsewhere, by which the markets and the prices of existing Chinese Government stocks are so affected as to render the successful issue of the loan impossible on the terms herein named, the Syndicate shall be granted such extension of time for the performance of their contract as the circumstances demand, or shall have the right to withdraw from their contract with the Chinese Imperial Government, which shall in that case become null and void.

17. The Deutsche-Asiatische Bank on the one side, and the Hongkong and Shanghai Banking Corporation for themselves, and on behalf of Messrs. Jardine, Matheson & Co., as joint agents for the British and Chinese Corporation Limited, on the other side, shall take the loan in shares to be agreed upon by the Syndicate, and without responsibility for each other.

18. The northern part of the railway lines shall be constructed, equipped, and worked on behalf of the Imperial Chinese Government by the Deutsche-Asiatische Bank, and the southern part of the railway lines shall be constructed, equipped, and worked on behalf of the Imperial Chinese Government by the British and Chinese Corporation Limited, under conditions as follows:—For each of these parts a Board of Commissioners shall be appointed to superintend the construction, equipment, and working of the railway lines in accordance with regulations to be arranged between the Imperial Directors and the Deutsche-Asiatische Bank and the British and Chinese Corporation Limited.

19. An office shall be provided for the Imperial Directorate, and a head office shall be established for each Board of Commissioners. The Board of Commissioners for the northern and southern parts of the lines respectively, appointed to superintend the construction and administration, shall each consist of five members, two Chinese managers representing the Imperial Directors and nominated by them, and three European members, namely, a representative of the Bank concerned, the manager and the Chief Engineer, to be nominated by the Deutsche-Asiatische Bank, and the British and Chinese Corporation Limited.

In case any foreign or Chinese members of the Boards of Commissioners do not work well together, it shall be open to the Imperial Directors, the Deutsche-Asiatische Bank, and the British and Chinese Corporation Limited, to mutually discuss means to arrange and deal with the matter.

The foreign and Chinese railway staff, including a Ti-tiao, shall be appointed by the Boards of Commissioners, who will report the appointment to the Imperial Directors. In the event of an important appointment the two Chinese members of the Boards may first consult the Imperial Directors.

The principal members of the railway staff shall be capable and experienced Europeans, but Chinese with sufficient experience in engineering or traffic may also be appointed.

Foreign and Chinese members of the railway staff shall, in the event of incapacity or misconduct, be dismissed by the Boards of Commissioners, who will inform the Imperial Directors of the same.

The salaries of the five members of each Board of Commissioners and of the foreign and Chinese railway staff shall be arranged by the Deutsche-Asiatische Bank, the British and Chinese Corporation Limited, and the Imperial Directors, and paid by the head office of their respective sections.

20. The plans, estimates, and all matters relating to survey must be submitted for approbation to the Board of Commissioners. The Chief Engineer shall indicate to the Chinese Commissioners the land which it is necessary to purchase, and which must be sufficient for the construction of a permanent way with double lines and dependencies, and the Chinese Commissioners shall thereupon effect such purchases at a price to be based on a scale to be arranged after survey. In the event of the route proposed by the Chief Engineer passing through towns, villages, graveyards, or other points where much obstruction is encountered, the Chief Engineer will, together with the Board of Commissioners, consider means of diverting the proposed railway route in order to avoid difficulties.

21. After completion of the survey and due inquiry as to the prevailing provincial likin and customs dues, the Imperial Directors will arrange with the Deutsche-Asiatische Bank and the British and Chinese Corporation Limited, regulations for the payment of likin and duty upon merchandise and live stock in transit over the railway lines.

22. All materials necessary for the construction and working of the lines, obtained either from foreign countries or from other provinces of China, and the revenues derived from the railway, shall be exempt from duty or taxation of all kinds, and the Imperial Government of China will instruct the customs and likin authorities accordingly.

All material, plant, and goods shall be ordered from the Deutsche-Asiatische Bank and the British and Chinese Corporation Limited, on conditions to be arranged in the Final Agreement.

The plans, estimates, and requisitions for materials shall be submitted to the Board of Commissioners by the Chief Engineer for reference at their discretion to the Imperial Directors, and the same shall be furnished by the Deutsche-Asiatische Bank and the British and Chinese Corporation on the best possible terms.

Due consideration will be extended to materials from the Hanyang Iron Works, if available when required, and of a quality satisfactory to the Chief Engineers of the Syndicate.

23. The Deutsche-Asiatische Bank and the British and Chinese Corporation Limited shall, during the working of the lines, maintain the railways, buildings, works, rolling-stock and dependencies in good order and condition.

24. Branch lines or extensions in connection with the Tientsin-Chinkiang Railway lines that may appear profitable or necessary later on shall be the subject of negotiations between the Imperial Directors and the Syndicate.

25. The tariff to be introduced by the European Manager shall be approved by the Boards of Commissioners, who will take into consideration the tariffs of other existing railway lines in China, while keeping in view the necessity for attracting traffic. The European Manager may also be instructed to enter into arrangements for tariffs on through traffic connecting lines. In case of war, foreign or internal, the railway lines shall be reserved in the first instance for the transport of Chinese troops, commissariat, and munitions of war under the order of Imperial Directors, and at half the ordinary tariff rates, and the railways shall not engage in any service injurious to China. In case of famine, grain will also be transported over the lines at half the ordinary tariff rate, under orders of the Imperial Directors.

26. All payments made and received in connection with the railway lines will be subject to the control of the Boards of Commissioners, and after the line is working estimates of receipts and expenditure shall be similarly submitted to the Boards. Regular accounts shall be furnished through the Imperial Directors to the Railway and Mining Bureau of the Tsung-li Yamen and the Board of Revenue, Peking. All payments made must be represented by Chinese or foreign vouchers as the case may be.

27. The profits from working completed sections of the railways during the time of construction shall be credited to railway construction account.

28. Should any traffic business be apparent later on as likely to benefit the Imperial Government of China and increase the earning power of the railway lines, the Deutsche-Asiatische Bank and the British and Chinese Corporation Limited shall represent the same to the Imperial Directors, and request them to obtain the necessary authority to arrange the business

29. The Deutsche-Asiatische Bank and the British and Chinese Corporation Limited shall work the lines on behalf of the Imperial Government of China until the present loan is redeemed. As soon as the loan has been completely redeemed this Agreement shall become null and void, and the railway lines and property named in this Agreement shall be handed over to the absolute disposal of the Chinese Government.

30. The annual net revenue is understood to be that resulting from the gross receipts of the passengers and goods traffic and the income from other sources, after deducting all working expenses, including maintenance of the permanent way, repairs and renovation of machinery and rolling-stock, and all expenses of administration, besides deducting an amount to be determined by the Deutsche-Asiatische Bank and the British and Chinese Corporation Limited as sufficient for accumulating a reserve fund for extraordinary improvements or repairs. Of the surplus of the joint net annual revenue of the northern and southern railway lines, after payment of interest and repayment of principal of the loan, first, a participation of 20 per cent. will be granted to the Syndicate in remuneration for their management of the construction and the working of the railway lines; secondly, an amount equal to 10 per cent. of the gross earnings will be transferred to a loan service reserve fund, deposited with the two banks, and the remainder will be at the disposal of the Imperial Government of China. An account of the said loan service reserve fund will be rendered yearly to the Railway and Mining Bureau of the Tsung-li Yamen and to the Board of Revenue, and the fund will be drawn upon only in the case of the revenue of the railway lines being insufficient to meet the service of interest and principal of the loan. On redemption of the loan being completed the balance of this fund will revert to the Chinese Government.

31. The powers and authority given and delegated to the Imperial Directors by the Imperial Government of China shall, in the case of their promotion or removal, be transferred to their successors, and the Deutsche-Asiatische Bank and the Hongkong and Shanghai Banking Corporation, Messrs. Jardine, Matheson & Co., and the British and Chinese Corporation Limited, may, subject to all their obligations, transfer or delegate all or any of their rights, powers, and discretions to any German or English Company, directors, or agents, with or without power of further transfer and sub-delegation.

32. Differences arising between the Imperial Directors and the Syndicate will be taken up and decided with equity and justice by the Tsung-li Yamen on the one side, and the Minister for Germany and the Minister for Great Britain in China on the other side.

33. As soon as possible after the signature of this Agreement the Engineers of the Syndicate will be authorized by the Imperial Chinese Government to survey and report upon the proposed railway lines, when, subject to such report being satisfactory to the Syndicate, this Preliminary Agreement will be ratified by the Syndicate and replaced by a Final Agreement containing all necessary details. Modifications in the conditions of this Preliminary Agreement may be made, subject to the consent of both parties.

34. The provisions of this Preliminary Agreement shall, immediately after signature, be ratified by an Imperial Edict (*) which shall be communicated by the Tsung-li Yamen to the Ministers for Germany and Great Britain in Peking.

35. Five sets of this Agreement are executed in English and Chinese, one set to be retained by the Tsung-li Yamen, one by the Railway and Mining Bureau, and one by each Contracting Party.

In the event of any doubt arising regarding the interpretation of the Contract, the English text shall rule.

(*) The Edict was issued on the 24th May, 1899; vide Blue Book. China, No. 1 of 1900, p. 190.

THE TIENTSIN-PUKOW RAILWAY LOAN AGREEMENT.

The following is a translation of the Agreement between the British and Chinese Corporation Ltd. and the Wai Wu Pu signed in Peking on Jan. 13, 1908, or the tenth day, twelfth moon, thirty-third year of Kwang Hsu:—

1.—The Chinese Government hereby sanctions the German and British Banks Syndicate issuing a loan for five million sterling, £5,000,000, at 5% which shall be styled the "Chinese Government five per cent Tientsin-Pukow railway loan."

2.—This loan is to furnish the capital wherewith to construct a Government railway from the vicinity of Tientsin to connect the existing Peking-Shanhaikwan line via Techow, Chinanfu to Ihsien along the southern boundary of Shantung, and this line will hereafter be known as the northern section of the Tsin-Pu or Tientsin-Pukow line; and from Ihsien to Pukow on the bank of the Yangtze opposite Nanking which shall hereafter be known as the southern section of the Tsin-Pu railway. The total distance of the two sections is 1085 kilometers or equal to 2170 Chinese li. The survey of the line will be subject to revision by the Director General.

3.—The capital will be used for the construction of the line, the purchase of the land and rolling stock, and to meet the current working expenses of the line when in operation, also the payment of the interest on the loan while the line is being constructed. The period of construction calculating from the date of commencement is estimated as four years, such commencement to take place within six months of the signing of the agreement, and within this period the syndicate shall place £500,000 at the disposal of the Director General, the money to be drawn by him either in China or from Europe as a first instalment of the loan. The whole or part of this £500,000 shall be deducted with interest from the proceeds of the first sale of the bonds and bear interest not exceeding 6%.

4.—The interest of the loan, which is 5%, shall be payable from the date of issue of the loan and during the time of construction, payable half-yearly. It will be paid by the Chinese Government either from the proceeds of the loan or from other sources as considered advisable.

5.—The loan is made for a term of 30 years, the repayment to commence at the end of ten years, and with the exceptions noted in Art. 6 of this agreement the amortisation to the banks concerned, Deutsch Asiatische Bank, and Hongkong and Shanghai Banking Corporation, Ltd., shall be made in half-yearly instalments out of the revenue of the line or from such other source as the Chinese Government may decide, payment being made in all cases 14 days previous to the date due calculated from the date of issue.

6.—After the expiration of ten years the Chinese Government may if it so desire redeem the outstanding amount of the loan or any part of it any time before the twentieth year on the payment of a premium of 2½%, or £102 10s. on every £100 bond. After the twentieth year redemption can be made without premium, but in any case six months' notice must be given by the Chinese Government, and the method of redemption shall be by the drawing of additional bonds at each ordinary drawing.

7.—The Deutsch Asiatische Bank and the Hongkong and Shanghai Banking Corporation having been appointed representatives for the loan by the British and German companies to receive the half-yearly payments due for amortisation and interest, referred to in Articles 4 and 5, they shall be made, in accordance with the amounts and dates attached to this agreement by the Director General of the Railway, in Shanghai or in Tientsin, in Shanghai or Tientsin Sycee sufficient to meet such payments in gold in Europe, exchange for which shall be settled with the said Banks on the same day. The railway administration may arrange exchange within six months previous to any due date for the repayment of interest and principal. Payment can be made in gold if the Chinese Government have gold funds in Europe, not remitted from China for the purpose, and desire so to use them.

The Hongkong and Shanghai Banking Corporation and Deutsch Asiatische Bank will receive a commission of one quarter per cent for their expenses as Agents.

8.—The Imperial Government of China engages that the interest and principal of this loan shall duly be paid in full, and if the revenue of the Railway or the proceeds of the loan do not suffice for full payment, the Director General shall memorialise the Throne on the amount of deficiency and make payment to the Banks on the date upon which funds are required.

9.—The loan is secured in the following manner:—

1. By lekin and internal revenues of the province of Chihli, 1,200,000 Haikuan Taels a year:

2. By lekin and internal revenues of the province of Shantung 1,600,000 Haikuan Taels a year, and

3. By the revenue of the Nanking Lekin Collectorate 900,000 Haikuan Taels a year and of the Huai-an Native Customs 100,000 Haikuan Taels a year in the province of Kiangsu.

The provincial revenues as above are declared free from all other loans, charges or mortgages.

So long as principal and interest of the loan are regularly paid, there shall be no interference with these provincial revenues. If principal or interest of the loan be in default at due date, then, after a reasonable postponement internal revenues of the three provinces sufficient to provide the amounts above stated shall forthwith be transferred to, and be administered by, the Imperial Maritime Customs, in the interest of the bondholders. And so long as this loan or any part thereof shall remain unredeemed, it shall have first claim over all future loans, on the above mentioned revenues of the three provinces. It is understood and agreed that so long as this loan is unredeemed the Railway shall under no circumstances be mortgaged nor its earnings given as security to any other object.

Should the Government decide to revise the Customs tariff with the view of abolishing likin, this agreement will not oppose such revision except that the likin required as security for the loan must not be decreased or abolished without previous arrangement with the Syndicate and after other source of revenue has been guaranteed.

10.—The Syndicate is authorized to issue bonds for the total amount of the loan and the form of the bonds shall be arranged in consultation with the Director General or the Chinese Ministers in London and Berlin. The bonds shall be printed in Chinese and English or Chinese and German and be signed by stamp of the Director General and his seal, the Chinese Minister in London or Berlin shall also put his seal upon each bond with his signature, as a proof that the sale of the bonds is authorized by, and is binding upon the Chinese Government. The representatives of the Syndicate in London and Berlin shall countersign the bonds as agents.

In the event of bonds being lost, or destroyed, the Syndicate shall notify the Director General and the Chinese Minister in London and Berlin, who shall authorize the Syndicate to insert an advertisement in the public newspapers notifying that payment of the same has been stopped according to the customs of the country concerned, and if the bonds are not recovered, the Director General, or the Chinese Minister in London or Berlin, shall issue duplicate bonds.

11.—All bonds and payments made and received in connection with the service of this loan shall be exempt from all Chinese taxes and imposts during the currency of this loan.

12.—The Syndicate is authorized to issue the regulations of the loan as soon as possible after the signing of this agreement, and the Chinese Government will instruct the Chinese Ministers in London and Berlin to assist the Syndicate in any matters connected therewith and to sign the regulations of the loan.

13.—The loan will be issued in two or more instalments of bonds, the first issue of £3,000,000, as soon as possible after the signing of this agreement and not later than twelve months from the date. The price to the Imperial Chinese Government of the first instalment shall be ninety three per cent of the face value. Further issues shall be effected in time to prevent any delay of the work of construction, in amounts to be determined by the Director General, and the price payable to the Chinese Government in respect of these series shall be the same rate as to the public, less charges of 5½ points by the Syndicate. Subscriptions will be invited by the Syndicate in Europe and in China both from Chinese and Europeans on equal conditions, preference being given to the application of the Chinese Government if application is made before the issue of the regulations.

14.—The income of the loan shall be paid to the account of Tientsin-Pukow Government Railway with the Hongkong and Shanghai Banking Corporation and the Deutsch Asiatische Bank in China, London or Berlin, as the case may be. Interest at the rate of 4% shall be granted on the portion of this account kept in London and Berlin, and interest on the portion kept in China will be allowed at the Banks' rates for current account or fixed deposits, as may be arranged. In addition to interest and commission the Banks will hold the funds for the Director General, who shall not draw more than £20,000 without giving the Banks ten days notice. Expenditure of funds shall be in amounts to suit the progress of construction of the railway by orders on the Hongkong and Shanghai Banking Corporation and the Deutsch Asiatische Bank respectively, signed by the Managing Director of the Railway or, in his absence, by his representative, and accompanied by his certificates stating the nature and cost of the work to be paid for.

Such amounts as may be required in China may at any time be transferred by the Managing Director, at his discretion, to Shanghai, the transfers being effected through the Hongkong and Shanghai Banking Corporation and the Deutsch Asiatische Bank respectively, and the transferred funds shall remain on deposit with those Banks until required for Railway purposes.

The accounts of the Railway will be kept in Chinese and English in accordance with modern methods, and will be supported by all necessary vouchers. During the period of construction the accounts will be open at any time to an inspector appointed and paid by the Syndicate. His duty will be to certify the due expenditure of the funds in accordance with the provisions of Article 3 of this Agreement. The Railway Administration will publish annually at the end of the financial year a report in Chinese and English of the working accounts and receipts of the railway, which report may be purchased by the public on application.

15.—If during the time of construction the proceeds of the present loan should not be sufficient to complete the construction and equipment of the line, the deficiency shall be provided, in the first place, from such Chinese funds as may be available so as to permit continuance of the work, any balance then uncovered being supplemented by a further foreign loan for the amount required, to be issued by the Syndicate. The interest and other conditions of such supplementary loan will be the same as in the present agreement. If after the completion of the line there should be a balance at credit of the railway account, such unused balance will be transferred to the credit of the interest reserve fund mentioned in Article 21 as a provision for payments for which the Imperial Chinese Government is responsible under this agreement.

16.—If, before the first sale of the bonds, any political or financial event should take place causing the prices of Government stocks to fall so as to make the successful issue of the loan impossible on the terms named, the Syndicate shall be granted further extension of time, but not beyond eighteen months from the date of this agreement. If within this time limit the first bonds have not been issued, then this contract shall become null and the money paid by the Syndicate under the provisions of Article 3 shall be by the Chinese Government with interest, but without any

other compensation or remuneration whatsoever.

17.—The construction and control of the railway will be entirely in the hands of the Imperial Chinese Government. For the work of the northern and southern sections respectively the Chinese Government will select and appoint fully qualified German and British Chief Engineers, acceptable to the Syndicate. These two Chief Engineers shall be under the orders of the Managing Director, or his duly authorized representative, and will carry out all the wishes of the Railway Administration with regard to the plan and construction of the line. They must pay all due respect to the Director General and the Managing Director. The terms of their respective agreements will be arranged by the Director General on his sole authority.

On the completion of the line the Imperial Chinese Government will administer both sections as one undivided Government Railway and will appoint an Engineer-in-Chief, who during the period of the loan shall be a European, without reference to the Syndicate.

18.—For all important purchases of railway materials tenders shall be called for by the Managing Director; and the Banks and Syndicate as Agents shall purchase the materials required on the terms most advantageous to the Railway, and shall charge the original cost of same with a commission of five per cent. It is understood that no orders for materials shall be executed or any expenditure incurred without due authorization by the Managing Director.

The Railway Administration shall have the right to reject on arrival in China materials which do not come up to specifications. At equal rates and qualities goods of German and British manufacture shall be given preference over other goods of foreign origin for the northern and southern sections respectively. The Railway Administration reserves the right, while paying the above stipulated commission to the said Agents in respect of all purchases of foreign materials, to avail itself of the services of other Agents in China or abroad should it see fit to do so.

No commission shall be paid to the Agents except as above provided; but it is understood that the Railway Administration shall provide out of Railway funds for the remuneration of Consulting Engineers whenever their services are engaged.

With a view to the encouragement of Chinese industries, preference will be given, at equal prices and qualities, over British, German or other foreign goods to Chinese materials, and goods manufactured in China. No commission will be paid on purchases of such materials and goods.

19.—Branch lines in connection with the railway line mentioned in this Agreement may be built by the Imperial Chinese Government with funds at their disposal from Chinese sources, if thought advisable, and if foreign capital is required preference will be given to the Syndicate.

20.—The Syndicate is granted the right to retain two hundred thousand pounds sterling (£200,000) out of the first issue of the bonds instead of 20% of the profits of the railway as first proposed. No further payment in respect of profits will be allowed on any subsequent series of the loan, or on any supplementary loan.

21.—After payment of interest and repayment of principal of the loan for any year, the Railway Administration will deposit with the Deutsch Asiatische Bank and the Hongkong and Shanghai Banking Corporation in Shanghai or Tientsin any surplus revenue of the railway line for that year up to the amount required to pay the following year's instalments of interest on the loan; the rate of interest on the deposit being arranged with the Banks from time to time with due regard to the conditions of the market.

22.—The Deutsch Asiatische Bank and the Syndicate may transfer or delegate all or any of their rights, powers, and discretions thereunder to any German or British Company, Directors or Agents with power of further transfer subject to the approval of the Director General.

23.—This Agreement is signed under authority of an Imperial Edict dated the tenth day of the Twelfth Moon of the 33rd year of Kuang Hsu, corresponding to the 13th day of January one thousand nine hundred and eight, Western Calendar, which has been officially communicated to the Ministers of Great Britain and Germany in Peking by the Wai Wu Pu.

24.—Five sets of this Agreement are executed in English and Chinese, three sets to be retained by the Imperial Chinese Government and two by the Syndicate. In any case of dispute the English text will be taken as correct.

GERMANY-CHINA

REGULATIONS FOR THE KIAO-CHAO AND TSINANFU RAILWAY. SIGNED MARCH 21, 1900. (TRANSLATED FROM CHINESE.)

ARTICLE 1. According to the second clause in the Second Section of the German-Chinese Convention after the Tsaochou Mission Affair, the building of a railway line from Kaiochou to Tsinanfu by a Chino-German Company is sanctioned, and in this Company, both German and Chinese subjects shall be at liberty to invest money.

At first, the management of this Company shall rest with the Germans, temporarily. A report of the shares taken up by the Chinese shall be made every six months to the Shantung Bureau of Foreign Affairs, and as soon as these shares shall exceed the amount of Tls. 100,000, the Governor of Shantung shall appoint a satisfactory official to become a member of the company and assist in clearly defining the regulations.

ART. 2. If said Company shall hereafter establish any branch office within the Province of Shantung, this Province will then appoint a satisfactory Chinese official for said branch office to assist in matters of consultation and operation.

ART. 3. The Governor of Shantung shall appoint a special official to assist in the locating of the railway; the high local officials or prominent gentry of various places will also be invited to assist. This will be done in order that the conditions of the various places may receive no injury. But as to scientific questions, these shall all be settled by the Engineer, and in all matters relating to the buying of land, the specially appointed official must be consulted. When the route has been investigated, the Company must prepare a map of the line showing all the conditions, the scale to be 25,000 to 1, which map is to be handed in to the Governor of Shantung, after which the matter of buying the land will be considered, and as soon as the land is all purchased, the work on the construction can begin. But as to the buying of the land, this matter must be managed as heretofore, with uniform promptness and peacefulness, that the owners of land may have no excuse for putting obstacles in the way, which would result in delaying the work. The Company will be permitted to buy only so much land as is actually needed in the construction of the railway, including what will afterwards be needed for the operation of the line. For small car-housing stations, it will be permitted to buy a piece of land about 630 metres long (1 meter = 2 ft. 9.6 in. official measure, and 1 ft. official measure = 338 millimeters), and about 70 metres wide. For large car-housing stations it will be permitted to buy a piece of land about 730 metres long and about 100 metres wide. For railway stations of medium size a piece of land 850 metres long and 130 metres wide can be bought adjoining the walls (of the cities). For large railway stations the amount of land that can be bought will depend upon the special conditions of the case, except only that the necessary amount shall be the limit. When it is necessary, however, to buy earth to use in making fills or elevations, it will not be understood that this must all come from within the limits set down above.

ART. 4. In the construction of the line, whenever the Company finds a place upon its land where a space should be left for water to flow—whether a bridge should be built or a sluice opened—they must leave satisfactory space for the flow, in order that no harm or hindrance shall come to the populace or their fields.

ART. 5. The railroads must not injure or obstruct any city walls or public works with the Province, nor any important strategical positions that may be used for protection.

ART. 6. In constructing the railway, the Company must go around small villages and market towns, also ancestral halls, temples, grave-yards, dwellings, and water-ways, orchards and vegetable gardens. These must not be made to suffer on account of the railway. And as for specially large and well arranged grave yards, these must receive special regard. In cases where it is impossible to avoid them, the matter should be thoroughly looked into and discussed by both parties, and the high local officials must be requested to give two months' notice to the owner of the property, that he may construct a new grave yard at another place modeled after the original one. Any person in such a case, moreover, must not be subjected to any financial loss.

ART. 7. In buying land the Company must use the Chinese units "kung" and "ch'ih" for measuring, one "kung" equalling five "ch'ih." (1 ch'ih = 338 millimeters, and in any locality one "mu" = 360 "kung" or 9000 square "ch'ih"). The Provincial Treasurer will furnish standard lengths for the "kung" and "ch'ih," that both parties may be guided by them. As to the Government tax, that matter will be dealt with in the same manner as is done in other parts of China where foreigners have bought land for the construction of railways.

ART. 8. In transporting materials and men for the measurement and survey of the land, the Company must keep off of the fields and vegetable gardens of the people, and in case where real damage has been done by trampling on the fields, and action therefor is brought, the Company will be required by the local high officials to make good the loss, out of pity for the abused party.

ART. 9. Whenever the local officials are requested to appoint someone to assist the company, said company must provide such person with money for meals; and this money must be kept in an entirely different account from that in which the money is kept for the purchase of land from the owners. The latter should be handed over to the local officials, to be received by them and handed over in turn to the owners. At the same time the local officials must send the Company a certificate of purchase for the land.

ART. 10. If the Company desires to rent any buildings or rooms along the line of the railway, they must first notify the high local officials, whereupon the said officials will consult with the owners and draw up a contract for the rent on behalf of the Company.

ART. 11. All materials necessary for the construction of the railroad must be bought at the market price, and a fair price given therefor; or else the local officials may be requested to buy them for the Company.

ART. 12. All silver and other money used by the Company must be exchanged justly at the rate of the place at the time.

ART. 13. The Company will not be permitted to act upon its off from the main line to connect with the mines, for the purpose of bringing down rock, lime, etc., such, for example, as the branch line at Poashan Hsien connecting with the main line—such roads will not come under this prohibition. But whenever it is desired to build one of these short branch lines, permission must first be requested from the Governor of Shantung, that he may investigate the matter.

ART. 14. All section men appointed by the Company within the limits of Shantung Province must be provided with passports sealed by the officials of both countries. This is to assist the local officials in giving protection. Without such passport they can not assume the responsibility of protection.

ART. 15. All Chinese or Germans employed by the Company must be supplied with special certificates to that effect; sealed both by the local officials and the Company. This will facilitate the detection of imposters, when the road is being laid out, as well as when it is being constructed, it will be the duty of the Chinese officials to appoint men section by section, to accompany and assist (the railway employés) in looking after their things—such as wooden stakes, etc. Should any falsely assert himself to be in the employ of the Company, he shall be arrested and punished by the local officials.

ART. 16. Should it ever happen that it becomes necessary for soldiers to protect the railway outside of the 100 li zone (Kiao-chow concession) the Governor of Shantung shall detail such soldiers, and foreign soldiers can not be used. The Governor of Shantung having consented to use his utmost endeavors to protect the railway both in time of construction and operation, he must see to it that the railway receive no injury from bandits.

ART. 17. The object of constructing this line is solely the development of commerce, and it will not be permissible to transport foreign soldiers or munitions used by foreign soldiers to any place outside of the 100 li zone. If by any chance, the peaceful relations existing between China and any foreign Power become broken, the railway will still remain under the management of the Company, but the company must still observe the above rule. But if the offices are seized by an enemy, and the Company loses its control, then this Province will no longer assume the responsibility of protecting the line.

ART. 18. Should the Province be visited by famine or flood, so that it is necessary to send relief to the sufferers in the form of rice or clothes; or should there be any riot necessitating the use of soldiers, such soldiers (with their arms, provisions, and baggage) and such relief (as mentioned above) must be shipped at reduced rates according to such regulations as Germany has in her own country.

ART. 19. The Company must make satisfactory arrangement for the easy collection and receipt along its line, if such likin and Customs duties as are collectible in the Province on merchandise and domestic animals. As to the erection of Custom Houses, etc., the Customs officials of this Province will first discuss with the Company the amount to be expended, after which that matter will be taken up.

ART. 20. In the construction of the railway, the Company must employ among their men, people who live in the various villages along the line; and the Company shall also trade with them, that they may not be left out in the cold as it were.

ART. 21. All Chinese employed by the Company outside the German concession shall, if they break the law, be tried by the high local officials; and when a local official notifies the Company that according to Chinese law, a certain man should be tried as an offender, said offender shall not be given improper protection, or be in any way screened by the Company. If there be any offenders or law-breakers among the foreigners employed, and action be brought against them, they shall be tried by foreign law, and it will be the duty of the Company to make a thorough investigation of the case, and not show undue favor.

ART. 22. Competent men must be picked for work on the road, and natives of the place must be used as far as possible. Moreover, the price to be paid for labor must depend upon the various conditions of the place. If the laborers get into quarrels with the people, it will be the duty of the Chinese officials to arrest them and deal with them according to the law.

ART. 23. After the completion of the road, special men shall be detailed to watch and repair the line. Old residents in the various respective districts—men who have considerable means—shall be intrusted with the hiring of these men, in order to guarantee that the men who are hired will all be peaceful and reliable characters. Moreover, those who are intrusted with the hiring of the men must obtain from the local officials certificates for the men they hire. This is for convenience in investigation.

ART. 24. After all work in connection with the railway is completed and the road is being operated according to regulation, should there be any accident resulting in the injuring of any Chinese or damaging their property, the Company must repay them for their losses according to the conditions. At all times notices must be conspicuously placed. Damages must be paid also for all losses or injury to life or property caused by error or carelessness in the handling of the trains. Before the road is entirely completed, and when trains are running according to temporary schedule, this rule that damages must be paid for all losses or injury to life and property caused by error or carelessness in the handling of the trains, likewise holds good.

ART. 25. If there ever be any dangerous places in this province, such as flooded districts, fallen trestles, or damaged bridges, interfering with the operation of the railway, then these obstructions must be removed before the road can be operated again according to regulation.

ART. 26. If at any time, whether it be when the road is being located, constructed, or operated, the Company for some reason requests the Governor of Shantung to furnish soldiers for protection, it shall be his duty to investigate the matter immediately and grant the request, sending sufficient guard of soldiers to the place where they are needed. As to the amount of extra money which the Company shall pay such guards, this will be considered apart.

ART. 27. The title of and authority over all railroad lands outside the German concession, so far as they rested in the former owner originally, will revert from him to the Governor of Shantung. Title to, and authority over, the railroad lands within the German concession will revert to the German Governor.

ART. 28. The Chinese Government shall have the right to buy back this railroad in the future, but as to this matter, it will be considered separately later.

After the above articles have been adopted, signed, and sealed, they shall be sent to the Department and District officials, as well as to the various railway officials, that all may become familiar with them and act accordingly. Hereafter, if any alterations or additions are deemed necessary, they can be made only by consultation of the Governor of Shantung, or such competent and experienced officer as he may appoint, and the Company.

(Sgd.) YIN-CH'ANG,
Manager of Railway and Mining Affairs, etc., etc., etc.

YUAN (SHIH-K'AI),
Vice-President Board of War, Governor of Shantung, etc., etc., etc.

Kuanghsu, XXVIth Year, Second Moon, 21st Day. March 21st, 1900.

(Signed on the part of the Chino-German Co. by Schmidt and Michaelis.)

AGREEMENT BETWEEN CHINA AND GERMANY IN REGARD TO THE RAILWAY AND MINING CONCESSION IN SHANTUNG.

I. The Chinese Government sanctions the construction by Germany of two lines of railway in Shantung. The first will run from Kiaochow and Tsinan-fu to the boundary of Shantung province via Wei-hsien, Tsinchow, Pashan, Tsechuen, and Suiping. The second line will connect Kiaochow with Chinchow whence an extension will be constructed to Tsinan through Laiwu-hsien. The construction of this extension shall not be begun until the first part of the line, the main line, is completed, in order to give the Chinese an opportunity of connecting this line in the most advantageous manner with their own railway system. What places the line from Tsinan-fu to the provincial boundary shall take in *en route* is to be determined hereafter.

II. In order to carry out the above-mentioned railway work a Chino-German Company shall be formed, with branches at whatever places may be necessary, and in this company both German and Chinese subjects shall be at liberty to invest money if they so choose, and appoint directors for the management of the undertaking.

III. All arrangements in connection with the works specified shall be determined by a future conference of German and Chinese representatives. The Chinese Government shall afford every facility and protection and extend every welcome to representatives of the German Railway Company operating in Chinese territory. Profits derived from the working of these railways shall be justly divided pro rata between the shareholders without regard to nationality. The object of constructing these lines is solely the development of commerce. In inaugurating a railway system in Shantung, Germany entertains no treacherous intention towards China, and undertakes not to unlawfully seize any land in the province.

IV. The Chinese Government shall allow German subjects to hold and develop mining property for a distance of thirty li from each side of these railways, and along the whole extent of the lines. The following places where mining operations may be carried on are particularly specified along the northern railway from Kiaochow to Tsinan, Weihsien, Pa-shan-hsien and various other points; and along the Southern Kiaochow-Tsinan-Chinchow line, Chinchow-fu, Laiwuhsien, etc. Chinese capital may be invested in these operations, and arrangements for carrying on the work shall hereafter be made by a joint conference of Chinese and German representatives. All German subjects engaged in such works in Chinese territory shall be properly protected and welcomed by the Chinese authorities, and all profits derived shall be fairly divided between Chinese and German shareholders according to the extent of the interest they hold in the undertakings. In trying to develop mining property in China, Germany is actuated by no treacherous motives against this country, but seeks alone to increase commerce and improve the relations between the two countries.

If at any time the Chinese should form schemes for the development of Shantung, for the execution of which it is necessary to obtain foreign capital, the Chinese Government, or whatever Chinese may be interested in such schemes, shall, in the first instance, apply to German capitalists. Application shall also be made to German manufacturers for the necessary machinery and materials before the manufacturers of any other Power are approached. Should German capitalists or manufacturers decline to take up the business, the Chinese shall then be at liberty to obtain money and materials from sources of other nationality than German.

This convention requires the sanction of His Majesty the Emperor of China and His Majesty the Emperor of Germany. When the sanction of His Majesty the Emperor of China reaches Berlin the Agreement approved by His Majesty the Emperor of Germany shall be handed to the Chinese Ambassador. When the final draft is agreed to by both parties four clean copies of it shall be made, two in Chinese and two in German, which shall be duly signed by the Chinese and German Ministers at Berlin and Peking. Each Power shall retain one Chinese copy and one German copy, and the Agreement shall be faithfully observed on either side.

Dated the fourteenth day of the second moon of the twenty-fourth year of Kuang-Hsu (6th March, 1898).

FRANCE

MEMORANDUM ON RAILWAY AND MINING CONCESSIONS SECURED BY FRANCE AND FRENCH COMPANIES IN CHINA.—(TRANSLATION).

I.—PROVINCES OF CHIHLI, OR HU-PEH AND HO-NAN.

Line from Peking to Hankow.

The Société d'études de chemins de fer en Chine, a Franco-Belgian syndicate in which the French element is represented by the big financial establishments of Paris and the big metallurgical industries of France, has received a concession for a railway from Peking to Hankow .The two contracts relating to this line, for a loan and for operating, are dated the 26th June, 1898. The line will have an extension of about 1,250 kilometers. It is being built and will be operated by the Société d'Études for the mutual profit and equal advantage of the French and Belgian parties.

The loan to be floated is 112,500,000 francs. It has been agreed that the French financial share shall be three fifths, that of Belgium two fifths. A first issue of 133,000 bonds of 500 francs 5% was made at Paris and Brussels on April 19, 1899. 226,800 bonds were subscribed for, 190,800 at Paris and 36,000 at Brussels. The product of this first issue will suffice to build 500 kilometers of which 300 in the north and 200 in the south, and which will be soon finished. 150 kilometers in the north are already being operated. The building of the remainder will be seen to by a second issue as soon as circumstances permit of it.

The Société d'Études has secured the right to work mines along the line and to make, for the use of these, branch lines.

A branch company has been organized under the name of "Société Franco-Belge de Recherches Minières en Chine" to work these mines.

II.—PROVINCE OF SHAN-HSI.

Line from Tai-yuan-Fu to Cheng-ting-Fu.

The concession for this line was provided for by a contract between the Bureau of Commerce of the province of Shan-hsi and the Russo-Chinese Bank, said contract being approved by the Chinese Government May 21, 1898.

The length of the line is 246 kilometers from Tai-yuan-Fu to Cheng-ting-Fu where it will join the railway from Peking to Hankow. The line will open the very rich coal field of Ping-ting, and its exploitation should be remunerative. The concession contemplates the extension of the Tai-yuan-Fu line to the southwest. The system as above will measure from 500 to 600 kilometers and will be worth about 60 millions.

The French group in the Russo-Chinese Bank is entrusted with working this concession.

III.—PROVINCES OF SHEN-HSI AND HO-NAN.

A Franco-Belgian syndicate secured, the 6th December, 1899, a concession for a line along the course of the Yellow river from Kai-feng-Fu, capital of Ho-nan—a future station on the Hankow-Peking line, to Ho-nan-Fu, with future extension toward Hsi-an-Fu, capital of Shen-hsi.

IV.—PROVINCE OF HU-PEH.

The "Syndicat d'études industrielles et de travaux publics en Chine" secured in the month of March, 1899, a concession of the anthracite coal beds of Ainantzu, near Tsé-kiu.

V.—PROVINCE OF KIANG-SU.

The same syndicate has secured, in the month of December, 1898, the concession of the coal beds of Yuan-shan, near Nanking.

VI.—PROVINCE OF CHE-KIANG.

A local railway from Husé to Kiang-nan, near Hang-chou, at the southern end of the Grand Canal, has also been conceded in the month of February, 1898, to the "Syndicat d'études industrielles et de travaux publics en Chine."

VII.—PROVINCE OF SSU-CH'UAN.

Coal and Iron Mines.

Following the researches of the Lyons mission to China, some capitalists and manufacturers had founded in 1897, under the name of "Syndicat franco-chinois de Tchung-King," a company for working the mineral wealth of Ssu-ch'uan. This company sent to Chungking as its representative, M. Duclos, engineer, a former member of the Lyons mission, who in 1899 made a contract with the provincial Administration ceding to the syndicate the working of mines of coal and iron in different localities in the province. A capital of 10 million taels is provided for the working of these concessions, with faculty of raising it by instalments.

Petroleum Deposits.

The Bureau of the province of Ssu-ch'uan has given to a French company, the "Société francaise d'explorations minières en Chine," the right to prospect in this province for petroleum deposits which are believed to be very rich. This concession will necessitate a final exploitation contract for which purpose a French company will be organized.

Ore Deposits.

The French consulate at Chung-king secured in the month of July, 1899, from the Mining Bureau of Ssu-ch'uan, the signing of a contract under which it cedes to a company to be formed with French and Chinese capital the working of ore mines (gold, silver, copper, lead and iron) in the Tien-shan and Ma-kung districts.

VIII.—PROVINCE OF KUEI-CHOU.

Quicksilver Mines.

By two contracts of March 17 and June 26, 1898, the Chinese Government has granted the "Société francaise d'explorations minières en Chine" the concession for working the quicksilver, coal and iron mines of the province of Kuei-chou and the works and blast furnaces of Tsing-ki. This company has ceded its rights to the "Compagnie anglo-francaise des mercures ét concessions minières du Kouei-Tchou" organized with a capital of 7,750,000 francs.

Three-fifths approximately of the bonds, which were issued in March 1899, are held by French.

The enterprise is running at present.

IX.—PROVINCE OF YUN-NAN.

Railway from Laokay to Yun-nan Hsien.

By a convention of the 9-10 April, 1898, the French Government secured for itself or for the Company chosen by it, the right to build a railway from Laokay (frontier of Tongking), to Yun-nan Hsien (450 kilometers), and a law of December 25, 1898, authorized the Government of Indo-China to grant a guarantee of interest to the Company which might become the grantees of this line.

In conformity with this law, the Governor-General of Indo-China signed the 15th June, 1901, with a syndicate of the principal financial houses of Paris, a convention for the building of the railway from Laokay to Yun-nan Hsien and for the working of the whole line from Haiphong to Yun-nan Hsien.

This convention was ratified by a law of July 5, 1901.

The principal provisions of the convention are the following:

The syndicate agrees to organize, within three months from the date of the passage of the law approving the convention between the Government of Indo-China and it, a stock company with a capital of 12,500,000 francs, to work the line from Haiphong to Laokay which is to be built by the Government of Indo-China, and for the purpose of building itself and working the railway from Laokay to Yun-nan Hsien. The company will receive from the colony a subvention of 12,500,000 francs and also a guarantee of three millions of francs payable during 75 years, for the bonds which it shall have issued for the purpose of building the railway.

Last July (1901) the "Compagnie francaise des chemins de fer de l'Indo-Chine et du Yunnan" was organized, and the bonds have just been issued.

For the purpose of building the line from Laokay to Yun-nan Hsien, the company has negotiated with the "Régie générale des chemins de fer" and the "Société de construction des Batignolles," which have formed for this purpose the "Société de construction de chemins de fer indo-chinois" with a capital of 4 million.

The "Société de construction" has sent during the present month (October 1901) survey parties to Yun-nan for the final study of the line.

X.—PROVINCE OF KUANG-TUNG.

Railway from Pakhoi to the Si-kiang (West River).

In the month of June, 1898, the French Government secured from China a promise that only a Franco-Chinese Company should have the right to build a railway from Pakhoi to a point to be determined on the Si-Kiang, and, generally speaking, railways with Pakhoi as a starting point.

In December 1899, on the occasion of the delimitation of said territory at Kuang-chou Wan, the French Government secured from China a concession for a railway uniting a point on the bay of Kuang-chou to a point to be chosen on the east coast of the peninsula of Lei-chou in the neighbourhood of On-pu.

At the same time, he Chinese Government took the engagement to concede to a French-Chinese company the mines in the prefectures of Kao-chou, Lien-chou and Lei-chou.

XI.—PROVINCE OF FU-KIEN.

Arsenal of Fu-Chou.

The French Government signed October 11, 1896, with the Chinese Government a contract for the sending of a French mission for the purpose of reorganizing the naval arsenal of Fu-chou. The contract provided also for the working, for the use of the arsenal, of the deposits of ores in the province.

The French mission, under the direction of M. Doyère, naval constructor, has been pushing its work since about five years.

BELGIUM

PEKING-HANKOW (LU-HAN) RAILWAY CONTRACTS. MAY 27, 1897, JULY 21, 1897. (TRANSLATION).

LOAN FOR THE RAILWAY FROM LU-KOU-CHIAO TO HAN-KOW

(Provisional) contract between the Chinese Railway Company and the Société financière et industrielle belge en Chine, the following has been agreed upon:

ARTICLE 1. The Chinese Government has granted a concession for the railway line from Lu-kou-chiai, near the city of Peking, to Han-kow, to the Chinese Railway Company, which has already a capital of thirteen millions of taels.

The said Company is authorized by the Imperial Government to negotiate a loan of four million five hundred thousand pounds sterling to be applied solely to the building and working of the line from Lu-kou-chiao to Han-kow; the provisions hereafter set forth must be observed by the Chinese Railway Company as well as by the Société financière et industrielle belge en Chine.

ART. 2. Said loan, of a nominal value of four million five hundred thousand pounds sterling, with ten per cent discount, or a real value of four million fifty thousand pounds sterling, is agreed to by the Société financière et industrielle belge en Chine. It will be paid

in four installments of one million twelve thousand five hundred pounds sterling, representing the real value, and at the following dates:

First payment: January 3, 1898.
Second Payment: July 3, 1898.
Third payment: January 3, 1899.
Fourth payment: July 3, 1899.

These payments will be made into a Belgian bank of Brussels, chosen by the Chinese Railway Company which is at liberty to transfer this sum as it sees fit.

ART. 3. The loan agreed to by the Société financière et industrielle belge en Chine shall bear annual interest of four per cent. Said interest shall be paid in January and July of each year.

ART. 4. The Chinese Railway Company agrees to reimburse the loan provided for in the present convention, after the first ten years, in twenty annuities of two hundred and twenty-five thousand pounds sterling, repayable yearly after January 3, 1909.

The payment of interest and annuities will be made in China, into a bank designated by the Société financière et industrielle belge en Chine, and in conformity with the table of amortization annexed to the present convention.

ART. 5. With the authorization of the Imperial Chinese Government, the payment of interest and the refunding of the loan will be guaranteed by the railway line from Lu-kou-chiao to Han-kow as also by all the property and material connected therewith.

It is understood that the guarantees given for the loan provided for in the present convention, are reserved for the subscribers to the present loan and that the guarantees given for subsequent loans can nowise prejudice that now granted the Société financière et industrielle belge en Chine.

ART. 6. Except in case of force majeure, the work of building must be finished and the railway from Lu-kou-chiao to Han-kow put in operation before the expiration of five years, that is to say of 1903.

ART. 7. The contracting parties may not invoke a state of war existing in any part of the world not to keep their engagements. If said state of war should exist in China, the Belgian staff shall remain in the employ of the Chinese Railway Company, unless its assistance is asked for by the Imperial Chinese Government.

ART. 8. The Société financière et industrielle belge en Chine shall choose an experienced, reliable and honest engineer to represent it and who shall be charged with controlling the technical work; he shall, furthermore, be charged with drawing up plans and carrying them out under the exclusive authority of the General Director of the Chinese Railway Company, under whose direct orders he shall be. This Controlling Engineer will be under the absolute direction of the General Director of the Chinese Railway Company. The Chinese Railway Company reserves all rights of management of the railway. It will be responsible until the expiring of the present contract for the salary of this Controlling Engineer as fixed upon in agreement with the Société financière et industrielle belge en Chine.

ART. 9. The foreign staff needed by the Chinese Railway Company for building and operating the line, during the life of the present contract, shall be chosen and presented by the technical Controlling Engineer representing the Société financière et industrielle belge en Chine; it will be appointed by decision of the Director General of the Chinese Railway Company. The Chinese Railway Company is at liberty to settle for itself as regard its foreign staff, the form of engagement to be used, adopting long or short term contracts.

All the staff employed by the Chinese Railway Company and attached to the working of the line, with the exception of the Controlling Engineer, will be required to obey the Chinese delegates of the Director General of the Company and work harmoniously with all the Chinese and foreign staff of other nationalities, chosen and appointed by the Director General to any position, and this in the interest of the Railway Company.

If disputes arise between European and Chinese Agents, they shall be impartially settled by the Director General, aided by the representative of the Belgian Company.

The Director General of Chinese Railways shall always be at liberty to designate foreigners of whatever nationality to inspect the works under way; the Belgian Company shall never have the right to prevent it.

Nevertheless, the duty of the persons so designated shall only consist in inspecting works and they shall never have the right to give orders to the staff employed in building and working the line. Such persons may likewise make reports to the Director General of Chinese Railways on the results of their inspections.

The staff employed in building and operating shall furnish all necessary facilities to foreigners entrusted with an inspection, and that in the interest of the Chinese Railway Company.

ART. 10. In case one of the foreign employés referred to in articles 8 and 9, irrespective of duties, should through carelessness, incapacity, disobedience of the orders of the Director General, insubordination, drunkenness, or bad conduct, be held to be unfit for the service the Director General shall have the right to cancel the contract and the dismissed agent shall leave at once the service of the Chinese Railway Company.

ART. 11. The materials necessary for the Chinese Railway Company, exclusive of all that can be manufactured in China or of that that can be manufactured there later on, shall be bought abroad.

The Director General shall decide, in consultation with the Controlling Engineer, the amount of materials to ask bids on; said quantity, however, shall never exceed fifty per cent of that required.

The award shall be made without any special favor for the Société financière et industrielle belge en Chine. If this Company agrees to furnish at perfect equality of conditions as to quality, price and carriage with those secured by the Chinese Railway Company, the Belgian Company shall have the furnishing of said materials; but if said Company is unable to supply under the above-mentioned conditions, the Chinese Railway Company will make its purchase where it likes; the Belgian Company shall in no way prevent it so doing.

As to the materials which cannot be divided in accordance with paragraph 2 of the present article (50 p. c. maximum asked for), if the Belgian Company agrees to furnish at perfect equality of conditions as to quality, price and carriage with those secured by the Chinese Railway Company, the furnishing shall be granted the Belgian Company; in the contrary case, the Chinese Railway Company shall in no way prevent it so doing.

The Chinese Railway Company reserves to itself the right to use all means it may deem good to inform itself as to the best prices for supplying all its materials, without the Belgian Company interfering in any way with its inquiries.

ART. 12. As a premium, the Chinese Railway Company will pay the Belgian Company a sum of five per cent on the net value, less the cost of transportation, insurance, etc., on all materials bought abroad. The materials for the branch from Lu-kou-chiao to Paoting is not subject to the premium provided for in the present article because nearly the whole amount of said materials has already been bought.

ART. 13. The taking over of material bought in Belgium will be in the factories making it and by a commission consisting of a delegate of the Chinese Railway Company and of a delegate of the Société financière et industrielle belge en Chine; in case of disagreement, these two delegates shall choose an umpire to decide the question. The expenses of the delegates shall be borne by the Company designating them. The expenses of the umpire shall be borne by the losing party.

ART. 14. The Société financière et industrielle belge en Chine and its chosen agent shall deal with no other persons or accept any other authority than the Chinese Railway Company. The latter, on its side, shall only recognize the Société financière et industrielle belge en Chine, established at Brussels, in 1897, to the conclusion of every other company.

During the life of the present contract, the Belgian Company shall in no wise be managed by manufacturers or subjects of other countries, and the Belgian Company shall not be at liberty to transfer this contract to any other country, nor to the subjects of another country.

ART. 15. If the provisions set forth in the present convention are regularly adhered to by the Chinese Railway Company, the Société financière et industrielle belge en Chine agrees, in case of necessity, to study means, in conjunction with the said Company, to secure to it special facilities for extending the terms of paying off the annuities and interest.

In case extensions are granted, the amounts which should have been refunded shall bear the same interest as that provided for the loan in the present convention.

If the Chinese Railway Company wishes to refund the whole loan before the date on which it falls due, it will be at liberty to do so and the interest will cease from the day of such refunding, and the contract shall be declared void from that day.

ART. 16. All the above provisions are agreed upon in the provisional contract made this day; this provisional convention is signed by the Director General of the Chinese Railway Company on the one part, and stamped with his seal, and, on the other part, by the two representatives of the Société financière et industrielle belge en Chine, and viséed for authentication by the Consul of Belgium at Hankow.

Within two months from the date of signing of the provisional contract, the Chinese Railway Company and the Societé financière et industrielle belge en Chine will sign again so as to confirm the provisional contract which shall then become final.

These formalities complied with, the contract shall receive the seals of Their Excellencies the Viceroys of Pechili and of Hu-Kwang, and also that of H. E. the Minister of Belgium, at Peking.

ART. 17. The present contract has been drawn up in the French and Chinese languages; when necessity arises for consulting the contract, the two texts, absolutely identical, shall both be authoritative.

Done at Wuchang, the 27 of the month of May 1897.

The Chinese Railway Company being represented by H. E. Sheng-Hsuan-Huai, its Director General.

The Société financière et industrielle belge en Chine being represented by MM. Masy and Rizzardi.

II

ADDITIONAL PROTOCOL TO THE CONTRACT RELATING TO THE LOAN FOR FOUR MILLION FIVE HUNDRED THOUSAND POUNDS STERLING FOR THE RAILWAY FROM HAN-KOW TO LU-KOU-CHIAO.

A provisional contract was made, at Wuchang, the twenty-seventh day of the month of May one thousand eight hundred and ninety seven (twenty-sixth day, fourth month, twenty-third year of the present reign) relating to the loan for the railway from Lu-kou-chiao to Han-kow.

Between

The General Company of Chinese Railways, established by Imperial decree of the twentieth October one thousand eight hundred and ninety six (fourteenth day, ninth month, twenty-second year of the present reign), and to which was granted, by the same decree, the concession for the said line, of the first part;

And the Belgian Company, established by authentic act dated the third March one thousand eight hundred and ninety seven, published in the Moniteur Belge (official paper) of the twenty-second, twenty-third March one thousand eight hundred and ninety-seven, of the second part.

This contract was authorized by Imperial decree of the twenty-fifth May one thousand eight hundred and ninety-seven (twenty-fourth day, fourth month, twenty-third year of the present reign). The decree of that date will be communicated to H. E. the Minister of Belgium at Peking through the Tsung-li Yamen.

The Chinese Railway Company, represented by H. E. Sheng, its Director General, duly authorized for that purpose by the above mentioned decree and the Belgian Company, represented by M. Alexis Dufourny, Chief Engineer, Director of the Ponts et Chaussées at Brussels, and by M. Edouard Walin, First class Engineer of the Ponts et Chaussées, Director of the Intercommunal Waterworks Company at Brussels, duly authorized on their side by the Belgian Company, authority confirmed by a telegram of H. E. the Belgian Minister at Peking, sign anew, in the name of the interested parties, the provisional contract according to the terms of article sixteen of the latter, so as to confirm it and make it final, and agree furthermore on the following:

ARTICLE 1. The above mentioned Belgian Company will make a complete study of the line from Han-kow to Lu-kou-chiao for the Chinese Railway Company; it undertakes to make the surveys, levelling, longitudinal and sectional cuts, to make all plans, drafts of masonry works, bridge, buildings, shops, stations and outhouses of whatever nature, as also the measurements and specifications, all charges for which are included in the forty-hundredths per cent. of additional interest mentioned hereafter in Article 3.

A similar study will be made for the rolling and fixed stock. But in conformity with article eight of the contract, the drafts and plans shall be successively submitted to the approval of the General Director. It is well understood that all these works are to be carefully done, without any omission; they are not to occasion any additional expenses.

Field work for the carrying out of the works must be finished within a year from the date of the conclusion of the last formalities of approval of the contract. They must be carried out with the necessary activity to permit of the embankment work being begun within six months of the above mentioned date.

ART. 2. The Belgian Company surrenders its right to a premium on materials, conferred on it by article twelve of the contract, and therefore said article is considered as void.

ART. 3. On the other hand, as compensation for the concessions mentioned above in Articles 1 and 2, and to guarantee its expenses of organization, mission abroad and issuing (the loan), inclusive of all disbursements whatsoever relating thereto, and finally its general expenses during the whole time of the loan, the Belgian Company shall receive an increase of forty hundredths per cent (four per thousand) on the rate of interest provided for in article three of the contract. This additional interest of four per thousand will be paid in the same manner as the yearly interest of four per cent; consequently the rate of interest of four per cent, together with all the general expenses, is raised, in effect, to four and forty per cent (4.40 p. c.). No charge whatsoever in excess of this rate of interest shall be asked for.

ART. 4. The payments provided for in article two of the contract shall be made into the Belgian Bank at Brussels, designated by the name of "Société Générale pour favoriser l'Industrie Nationale," and the Chinese Railway Company will transfer (thereto) the sums paid into the Commercial Bank of China at Shanghai, organized by Imperial decree under date of the twelfth November one thousand eight hundred and ninety-six (eighth day, tenth month, twenty-second year of the present reign). The payments of interest and annuities will be made in pounds sterling into the above mentioned Commercial Bank.

ART. 5. It is understood that the guarantee of the railway line, referred to in article five of the contract, has absolutely priority of rank.

ART. 6. The present protocol shall be stamped with the seal of Their Excellencies the Viceroys of Pechili and of Hu-Kwang, and also with that of H. E. the Minister of Belgium at Peking.

The present protocol has been made out in four copies in the French and Chinese languages; both versions are equally authoritative.

Done at Shanghai, the twenty-first of July one thousand eight hundred and ninety-seven.

For the Chinese Railway Company,
The Director General,
SHENG.

For the Belgian Company,
The first class Engineer of Ponts et Chaussées, Director of the Intercommunal Waterworks Company,
WALIN.

The Chief Engineer, Director of Ponts et Chaussées,
DUFOURNY.

III

LOAN CONTRACT

Between the undersigned:

1. Their Excellencies the Viceroys of Chihli and of Hupeh, acting in virtue of full powers from the Imperial Chinese Government, duly authorized by decree of H. M. the Emperor of China, under date the 20 October, 1896, of which communication has been officially made to the Representatives of Belgium at Peking, by dispatch of the Tsung-li Yamen, under date of

2. The Imperial Government of China, represented by H. E. Sheng Hsuan-huai; Director General of the Chinese Railway Company;

3. The Chinese Railway Company, represented by H. E. Sheng-Hsuan-huai, its Director General,

and the Société d'Etude de Chemins de Fer en Chine, represented by M. Eugene Hubert, engineer,

Has been agreed the following:

ARTICLE 1. The Imperial Chinese Government has, in compliance with a decree dated the 20 October, 1896, of which copy is annexed to the present contract, granted the concession of the line from Lu-kou-chiao (Peking) to Hankow (about 1,300 kilometers) to the Chinese Railway Company, which has assets amounting to thirteen million taels.

An edict of H. M. the Emperor of China has authorized Their Excellencies the Viceroys of Chihli and of Hupeh and H. E. Sheng Hsuan-huai, Director General of Chinese Railways, to contract, in the name and on account of the Imperial Chinese Government, a loan the product of which is destined exclusively to the building of the above mentioned line.

This edict, bearing date the 20 October, 1896, and of which a copy is annexed to the present contract, is worded as follows:

"Edict of His Majesty the Emperor of China:
"In response to a request of Their Excellen-
"cies the Viceroys of Chihli and of Hukwang,
"presented to His Majesty the Emperor of China,
"an Imperial edict, bearing date of this day,
"authorizes the organizing of a Railway Com-
"pany and grants it the concession of the line
"from Lu-kou-chiao (Peking) to Hankow.
"His Majesty the Emperor authorises the Rail-
"way Company to contract abroad a loan the
"product of which shall be devoted in full to
"the building of said line."
"H. E. Sheng Hsuan-huai, under-secretary
"of State, is appointed Director General of this
"new Company."
"Peking, the 20th October, 1896."

In compliance with the terms of this edict, the Imperial Chinese Government, represented by Their Excellencies the Viceroys of Chihli and of Hupeh and the Director General of Chinese Railways, has decided to contract a State 5 p. c. foreign gold loan, of a nominal value of 112,500,000 francs (or 4,500,000 pounds sterling).

This loan shall be known as the Chinese 5 p. c. 1898 Loan.

ART. 2. This loan will be represented by 225,000 bonds of 500 francs gold. These bonds, the text of which is annexed to the present Contract shall be signed in the name of the Imperial Chinese Government by the Viceroys of Chihli and of Hupeh and by the Director-General of the Chinese Railway Company.

They shall be issued in blocks of 1 to 5 bonds, in the proportion to be indicated by the Société d'Etude de Chemins de fer en Chine and are to be manufactured at its expense.

They shall bear 5 p. c. interest annually on the par value payable in gold.

Interest shall accrue from the date of the payment and shall be payable the 1st September and the 1st March of each year.

The first coupon is payable in gold at ------ francs.

ART. 3. The loan shall be extinguished in twenty years, from the year 1909, by yearly drawings by lot (tirages au sort), which will take place in Brussels, in the offices of the Société Générale pour favoriser l'Industrie Nationale, in conformity with the table annexed to the present.

The drawings shall take place the second Tuesday of January each year; the first drawing shall take place on that date in 1909.

The numbers of the bonds drawn shall be published in four newspapers at the expense of the Société d'Etude des Chemins de fer en Chine.

ART. 4. The bonds drawn shall be refunded in gold at their par value on the date on which falls due the next coupons.

The bonds presented for reimbursement must have attached to them all the coupons remaining unpaid, and the amount of missing coupons will be deducted from the capital to be refunded.

Interest on bonds ceases to accrue from the date set for reimbursement.

ART. 5. The Imperial Chinese Government denies itself the right before the 1st September 1907 to increase the amortization, to pay off the whole loan or to make a conversion of it. After that date, it shall be at liberty to pay off the loan at any time before the terms of payment, and once the refunding made, the contract shall be declared annulled.

ART. 6. The coupons and the bonds (titres) redeemed (amortis) shall be payable in francs, in Europe in the office or offices designated by the Société d'Etude and entrusted by it with the management of the loan.

ART. 7. Payment of interest and refunding of bonds of the present loan are guaranteed by the gross revenues of the Imperial Chinese Government.

Furthermore, in virtue of an authorization already granted by the Chinese Government and in agreement with it, the Chinese Railway Company declares that it specially assigns, preferentially for the payment of interest and capital of the present loan, and consequently cedes and delegates in favor of said bonds all the net revenues of the line from Lu-kou-chiao (Peking) to Hankow,—after the regular payment of all expenses of administration and operation, the whole, as is furthermore set forth in a treaty for operating (the line) concluded between the Chinese Railway Company and the Société d'Etude de Chemins de fer en Chine, treaty hereto annexed and forming an integral part of this contract.

This assignment (affectation) is made exclusively and irrevocably until complete refunding of the bonds of the present loan.

ART. 8. The Chinese Railway Company directs the Société d'Etude to deposit the funds from the net revenue of the traffic with the Société Générale pour favoriser l'Industrie Nationale, established at Brussels, or with the company designated by it.

This latter shall convert into gold, and to the best interest of the Imperial Chinese Government and the Chinese Railway Company, and up to the full amount of the sum necessary to insure the service of the loan at the following semi-annual payment, the deposits made with it by the Société d'Etude empowered by the Chinese Railway Company to make them.

These deposits by the Société d'Etude with the Société Générale Belge or the company designated by it shall continue to be made until the sum necessary for the full service of the loan at the date of the next semi-annual payment has been completed in gold, and in such manner that said service is insured three months at least before said semi-annual payment falls due. The depositories shall utilize these sums in the manner the most advantageous for the Chinese Company.

The account on which these sums are borne shall be charged twenty days before date of semi-annual payment with the sum necessary

for the service of the loan, interest, amortization, expenses and commissions.

ART. 9. The bank having received in deposit the funds shall have the right to take, without new authorization, from such funds on deposit, the amount of the coupons to be paid during the period of construction.

ART. 10. So as to insure the guarantee just mentioned for the bonds of the present contract, the Chinese Railway Company recognizes for these bonds a prior special lien on the railway from Lu-kou-chiao (Peking) to Hankow: line, stationary and rolling stock and receipts.

This special assignment is accepted in the name of the bondholders by the Société d'Etude. In case of non-execution of the obligations assumed by the Chinese Railway Company in the present contract, the Société d'Etude or the Belgian Company designated by it, shall have full power to enjoy as to said property all the rights and powers resulting from said special assignment.

ART. 11. The preceding provisions do not relieve the Imperial Chinese Government from personal responsibility relative to the present loan, as this responsibility is specified in Article 7.

Consequently, the Imperial Chinese Government agrees to make up the necessary amount for the service, in gold, of the loan, in case the sums accruing from the net proceeds of the line from Lu-kou-chiao (Peking) to Hankow, and paid by the Société d'Etude, entrusted with this service by the Chinese Railway Company, to the Société Générale Belge, or to the Company which it may designate, should not have reached, after their conversion in gold, and at least three months before the following semi-annual payment, the amount sufficient to cover said service.

In this case, and upon the request made it, the Imperial Chinese Government must hold at the disposal of the Société Générale Belge or of the Company designated by it 60 days before the next semi-annual payment, gold or securities deemed sufficient to realize the amount in gold, which the Company shall have notified the Government is necessary to complete the payment.

ART. 12. Out of the sums coming from the payments made by the Société d'Etude or the payments made by the Imperial Chinese Government, the Société Générale Belge, or the Company designated by it, shall in due time place at the disposal of the Firms entrusted with the service of the loan, the necessary amounts, according to the needs as ascertained during the preceding half-year.

ART. 13. The Imperial Chinese Government will pay to the Firms entrusted with the service of the loan, a commission of ¼ per cent on the amount of paid coupons and a commission of ¼ per cent on the amount of the bonds drawn or redeemed by anticipated reimbursement. The amount of this allowance shall be deducted every six months from the surplus of the available exploitation receipts, and, in case of insufficiency, it shall be immediately paid by the Imperial Chinese Government.

ART. 14. The Imperial Chinese Government binds itself by the present conventions to observe and cause to be observed the privilege stipulated in favor of the bonds in article 9, and to maintain, free and exempt from all tax whatsoever, the bonds and coupons, as well as all transactions of whatsoever nature connected with the service of the loan.

ART. 15. Coupons which shall not have been presented for cashing within five years following their falling due, shall revert to the Imperial Chinese Government; thirty years shall be the limit for redeemed bonds.

On the death of any bondholder of the present loan, the bonds shall be transferred and shall belong to his heirs, according to the inheritance laws in force in the country of which the deceased bondholder was citizen.

Payments of coupons and the redemption of bonds shall be made in time of war, as in time of peace, to the bearers whether they be subjects of friendly or hostile States.

In case of loss, of theft or destruction of bonds of the present loan, the Chinese Government shall replace them, after having been furnished satisfactory proof of their loss or of the destruction of the title deeds and of the rights of the claimants.

ART. 16. The Imperial Chinese Government through its representatives in Europe shall immediately take the necessary steps and furnish the necessary documents for the official listing of the present loan in the Bourses of Brussels and Paris.

ART. 17. Out of the total amount of the present loan, representing as nominal capital a sum of 112,500,000 francs, the Société d'Etude de Chemins de fer en Chine purchases outright (achète ferme) 39,000,000 francs of nominal capital, or 78,000 bonds of 500 francs, at 90%, for the total sum of 35 million 100,000 francs, delivery to date from the payment to the banks designated in the following article.

ART. 18. The Société d'Etude de Chemins de fer en Chine shall deposit the amount of this purchase, as follows: 8,600,000 francs in the Russo-Chinese Bank at Shanghai, and the remainder in a bank designated by common accord by the Director General of the Chinese Railway Company and the Société d'Etude and against receipt by the Russo-Chinese Bank in Paris of definite bonds for 78,000 bonds bought outright (achetés ferme) and deposit in the same bank of the definite bonds for 147,000 bonds forming the surplus of the loan.

The Russo-Chinese Bank and the Bank designated by common accord by the Chinese Railway Company with the sums deposited with them, it being understood that these depository establishments shall not be obliged to deliver these sums, except under the conditions and under the reservations indicated in undermentioned Article 20.

ART. 19. The Chinese Railway Company declares that it has resources amounting to thirteen million taels.

The construction of the railroad from Lu-kou-chiao (Peking) to Hankow being limited provisionally to the section from Lu-kou-chiao (Peking) to Paoting (145 kilometers) and to the Hankow Sinyang section (247 kilometers) which must be constructed first; it is understood that the thirteen million taels above mentioned shall in the first place be applied to the construction and to putting in complete working order of the Lu-kou-chiao-Paoting section.

The construction of the entire line (not including the Peking-Paoting section) shall be done under the direction of the Société d'Etude de Chemins de fer en Chine or its representatives, but for the account of the Chinese Railway Company.

The Société d'Etude shall make the studies, plans, surveys, estimates for the whole line, direct the execution of all the work and order the materials, machinery and furniture necessary to insure the regular operation of the line. However, the Director General of the Chinese Railway Company reserves to himself the right to approve the building plans and contracts for supplies.

Except for supplies of materials and expenses of all kinds paid in Europe, the Chinese Railway Company must place at the disposal of the Société d'Etude the necessary sums for settling all payments without exception necessitated in the carrying out of the work, as well as the payment of the staff under the orders of the Société d'Etude and, in general, all expenses whatsoever.

Consequently the Société (d'Etude) shall not be obliged to pay any expenses from its own funds.

It shall endeavor to complete the construction of the line within three years.

ART. 20. On the Hankow-Sinyang section and eventually on the other sections between Paoting and Sinyang, the Russo-Chinese Bank in the first place and afterwards the bank designated by common accord by the Chinese Railway Company and the Société d'Etude, shall deposit each month with the Chinese Railway Company, out of the available funds in their hands, the amounts necessary to settle the payments for the ensuing month, according to the estimates prepared by the Société d'Etude or its delegates.

A first transfer equivalent to the estimated value of the work already executed on the Hankow-Sinyang section shall be made as a first credit.

The price paid for the above mentioned bonds being exclusively affected to the construction of the line from Hankow to Paoting, the Russo-Chinese Bank and the bank referred to in the first paragraph of the present article, would have the right not to pay the funds in case one of their payments were diverted from the purpose stipulated as well as in case the representatives of the Société d'Etude were no tempowered by the Chinese Railway Company to continue the management of the construction works with which this company is exclusively entrusted.

The balance, if there be one, shall be held subject to the order of the Chinese Railway Company.

ART. 21. The Chinese Government cedes to the Société d'Etude an option till December 31, 1901, to purchase the surplus of the loan, to wit: 73,500,000 francs at 90% nominal, plus the accrued fraction due on the coupon.

This option can be availed of one or several times, without regard to the amortization made, but each notice must be for a sum not less than 25,000,000 francs net.

The delivery of the bonds taken on the options shall be to the Russo-Chinese Bank in Paris; the final bonds shall be delivered within a month dating from the telegraphic notifications to the management of the Chinese Railway Company.

The price of these bonds shall be deposited in the bank designated by common accord, by the Chinese Railway Company and the Société d'Etude, and it shall not surrender them except under the conditions stipulated in the above article 20.

ART. 22. If the Société d'Etude takes advantage of the right granted it to purchase all or part of the bonds on which it holds an option, it shall each time confer with the Chinese Railway Company to determine upon the sections (of line) to be built with its new funds.

ART. 23. The surveys of the line, dating from the signing of the present contract, are to be made at the expense of the Chinese Railway Company; the Hankow-Sinyang sections shall first be surveyed, and then successively each of the other sections, for building which an agreement may be had before the Société d'Etude avails itself of the right of option conceded it by Article 21.

It is henceforth understood that the section to be built with the funds derived from the first option shall be the one from Paoting towards the Yellow River, and the survey shall be begun during the first year.

ART. 24. La Société d'Etude reserves the right to make one or more issues, by public subscription or otherwise, of all or any part of the bonds whether bought outright (achetées ferme) or included in the option.

Should the issue be by public subscription, the Société d'Etude shall have the right to include in the total offered for subscription, exclusive of the 78,000 bonds taken outright (prises ferme) all or any part of the bonds covered by the option, without on that account being committed to take outright (prendre ferme) any part whatever of the bonds covered by the options.

It shall be allowed fifteen days, counting from the closing of the public subscription, to inform by registered telegram addressed to His Excellency Sheng, Director General of the Chinese Railway Company at Shanghai, the number of bonds it has taken, and that, at the price and under the conditions above specified.

The payment and the delivery of the bonds taken by the Société d'Etude following the public subscription shall take place under the conditions specified in the above mentioned articles.

ART. 25. The present contract shall only be binding on the Société d'Etude inasmuch as it shall have the promise that, with the exception of what can be supplied by the Hanyang works, all the materials and supplies necessary for the construction and working of the railroad from Lu-kou-chiao (Peking) to Hankow will be ordered from the Société d'Etude which will fill the orders under the best possible terms.

Exception is made for the material necessary for the equipment (armement) of the line from Lu-kou-chiao to Paoting, as this material is almost entirely ready.

Compliance with the provisions of this clause by the Chinese Railway Company shall result from the ordering of material for each of the sections undertaken.

Material ordered from the Société d'Etude shall be exempt from all customs and likin duties on entering or crossing Chinese territory.

If this franchise is not made good before the expiration of the month following the date on which the Belgian Government shall have notified the Société Belge of the receipt of the notifications stipulated in article 29, it (the Société d'Etude) reserves the right not to hold itself bound.

It reserves the same right and within the same time if extraordinary events should arise, as for instance war, or if the French Debt (rente francaise) should fall below par.

If, on its side, the Société Belge should not keep the terms of the present contract, it shall be annulled; the Chinese Railway Company shall be free to enter into contract with whomsoever it may see fit, and to dispense with the services of the Engineer-in-Chief.

ART. 26.—In case of controversies or differences between the Société d'Etude or its representatives and the Imperial Chinese Government or the Chinese Railway Company, these controversies or differences shall be submitted to the judgment of a member of the Tsung-li-Yamen and the Belgian Minister in China.

In case of disagreement between these latter, the Tsung-li-Yamen and the Belgian Minister shall designate an arbitrator who shall decide finally.

ART. 27. As guarantee for the financial execution of the present contract, the Société d'Etude has already deposited in the Russo-Chinese Bank 20,000 pounds sterling as security.

It shall take full possession of this sum as soon as it shall have fulfilled the provisions stipulated in the first two paragraphs of article 18 here above.

It is understood that the payment of 8,600,000 francs to the Russo-Chinese Bank at Shanghai must be made within the month following the date of the signing of the present contract.

ART. 28. The Tsung-li-Yamen shall be bound in case the Belgian Minister at Peking request it to give cognizance of the title to the Minister of the foreign country, indicated by him, as subscriber to the issue of stock.

ART. 29. The present contract is made in triplicate, one copy for the Chinese Government, one for the Chinese Railway Company and the third for the Société d'Etude de Chemins de fer en Chine.

In case of doubt or disagreement, the French text alone shall be used to interpret the contract.

The present contract must be submitted through the proper channel for Imperial Sanction, and when said Sanction has been obtained, the Tsung-li-Yamen must advise the Belgian Representative at Peking by official dispatch and eventually the Representative in Peking of the foreign country to whom it may give cognizance of the title (le Représentant á Pekin du pays étranger le titre sera notifié). These formalities shall be complied with within the month following the signing of the contract. The provisions of the contract signed at Wuchang the 25th May, 1897, and of the protocol signed the 21st July, 1897, which do not conflict with the present contract, especially those of Article 14 of the Wuchang contract and Article 2 of the Shanghai protocol, are and remain in force. The Société Générale of Brussels and the Russo-Chinese Bank are parties to the present contract, and they, after having examined the preceding contract, declare that they, as far as necessary, accept the duties imposed. According to Article 14 of the above mentioned Wuchang contract, the Chinese Railway Company will only recognize the Société Belge as contracting party.

Done at Shanghai, the twenty-sixth day of the month of June, one thousand eight hundred ninety-eight.

The Engineer representing the Société d'Etude de Chemins de fer en Chine.

The Director General of the Chinese Railway Company.

The Representatives of the Imperial Chinese Government:

The Viceroy of Hupeh,
The Viceroy of Chihli.

OPERATING CONTRACT

Between the undersigned:

1. The Imperial Chinese Government, represented by Their Excellencies, the Viceroys of Chihli and of Hupeh;

2. The Chinese Railway Company, represented by His Excellency Sheng Hsuan-huai, its Director General of the Company at Shanghai.

And the Société d'Etude de Chemins de fer en Chine, whose office is at Brussels,

Has been agreed as follows:

ARTICLE 1. The Chinese Railway Company, in accord with the Imperial Chinese Government, entrusts the Société d'Etude de Chemins de fer en Chine, which shall appoint representatives for that purpose, with the direction, administration, and operating of the line from Hankow to Lu-kou-chiao (Peking), for which it holds a concession, under the terms of an edict of His Majesty the Emperor of China dated October 20, 1896, and of which a copy is annexed to the present contract.

ART. 2. The Société d'Etude shall take over the working of the line as soon as each section is completed, following final acceptance by the Imperial Administration of Chinese Railways. Each section must be completely and previously equipped and provided with all the material necessary for its working, as well as with the supplies of tools, furniture and a fund for running expenses. The Société d'Etude or the representatives it shall appoint under the provisions of Article 1, shall organize the various services, shall have the right to hire the personnel, which it shall have absolute right to dismiss, or disband, and to fix its salaries according to a fixed schedule previously communicated to the Director General of the Chinese Railway Company. It shall make all purchases necessary for operating, maintaining or repairing the road; it shall fix the schedule of rates in the terms of concession contracts, collect revenues of all kinds and pay the operating and management expenses of the Company. The foregoing measures, taken for the purpose of operating the line, shall be submitted, for consultative purposes, to the Director General of Chinese Railways.

The Chinese Railway Company, which will appoint delegates for that purpose, shall have absolute right of control over the receipts and expenses.

The purchase of all new material or works for the improvement or extension of the regular road, or of stations, which may be found necessary after the opening of each section of the line to traffic shall be at the sole expense of the Chinese Railway Company. As far as possible the supplies necessary for the maintenance and repairing of the road shall be ordered from the works and mines under the control of the Director General of the Chinese Railway Company.

ART. 3. In case of war or revolution in China, the transportation of troops, munitions and of the supplies of the Chinese army shall have right of way over all commercial transportation. The rate for such transportation shall be 50 per cent of the tariff, and it shall be carried according to the instructions of the Director General of the Chinese Railway Company. The transportation of anything of nature to injure the Imperial Chinese Government shall moreover be forbidden.

ART. 4. Out of the receipts from operation available, after payment of all expenses, the Société d'Etude shall retain the necessary sum to insure the payment, every six months, and at least three months before its date of payment, of the service of the loan of 112,500,000 francs contracted by the Imperial Chinese Government.

This reserve shall be made as long as said loan is not entirely paid off.

The amount of this reserve shall be deposited monthly with the Société Générale Belge pour favoriser l'Industrie Nationale, or with the Company designated by it. The latter shall convert into gold on the best terms procurable the sums paid to it for the service of the loan.

When, by means of the sums thus paid in, the service in gold of the loan shall have been insured, the Société d'Etude shall deduct 10% of the surplus, which shall be applied to the creation of a reserve fund for rebuilding or making extraordinary repairs necessary to insure the working of the lines.

It shall then pay the balance remaining available out of the operating revenues to the Chinese Railway Company.

ART. 5. The duration of the present operating contract is fixed at thirty years dating from the signing of the contract.

However, this period would be fully entitled to extension in case the loan of 112,500,000 francs should not at that time be wholly paid off; this extension would continue as long as the complete amortization had not been made. But if the refunding of the loan should be made before the dates on which they fall due, the present working contract will be annulled from the date of the total refunding of the loan.

ART. 6. During the entire period of the working of the line by the Société Belge, the Chinese Railway Company grants it 20% of the net profits of the railroad from Peking to Hankow, as agreed upon by mutual consent, after the closing of each fiscal term (exercise), taking into account, naturally, the sums necessary for the service of the interest and the amortization of the loans.

ART. 7. In case of contentions or disagreement between the Société d'Etude and the Management of the Chinese Railway or the Imperial Chinese Government, said contentions and disagreements shall be settled as specified in Article 26 of the loan contract.

ART. 8. If the revenues from operating the lines are not sufficient to cover the expenses, the Chinese Railway Company must supply the Société d'Etude with the necessary means to insure the operating of the lines under normal conditions.

ART. 9. All materials and supplies needed by the Société d'Etude for the working of the line, as well as for the maintenance and repair of the line, shall, when imported from abroad, be exempt from all customs or likin dues.

ART. 10. The present contract is made in triplicate; one copy for the Imperial Chinese Government, one for the Chinese Railway Company, and the third for the Société d'Etude de Chemins de fer en Chine.

In case of doubt or disagreement the French text shall alone be accepted for the interpretation of the contract.

The present contract must be submitted through the proper channel for Imperial sanction, and when said sanction shall have been obtained, the Tsung-li Yamen must advise, by official dispatch, the Belgian Representative at Peking and eventually the representative at Peking of the foreign Government to which the title may be officially notified (auquel le titre sera notifié).

Done in Shanghai, the twenty-sixth of the month of June eighteen hundred ninety-eight.

The Engineer representing the Société d'Etude de Chemins de fer en Chine.

(Sgd.) HUBERT.

The Director-General of the Chinese Railway Company,

(Sgd.) SHENG-HSUAN-HUAI

Seen for authentication:

(Sgd.) FRERE,
Belgian Consul.

Witnesses:

(Sgd.) HU.
KO.

(Official seal of the Chinese Railway Administration.)

The Representatives of the Imperial Chinese Government:

The Viceroy of Hupeh,
The Viceroy of Chihli.

CONTRACT FOR BUILDING A RAILWAY FROM KAI-FENG FU TO HO-NAN FU. (SIGNED AT SHANGHAI, 1904.)

Between the undersigned:

1. The Imperial Chinese Railway Company, represented by H. E. Sheng Kung Pao, Director-General, duly authorized by the Chinese Government.

2. La Compagnie Générale de Chemins de Fer et de Tramways en Chine, represented by Monsieur Armand Rouffart, its delegated Administrator, provided with full powers.

It has been agreed as follows:

Article 1.—The Director-General of the Imperial Chinese Railway Company, H. E. Sheng Kung Pao, has in a report asked the Chinese Government that a line of railway should be built starting from a point called Yung Tse on the railway line of the Luhan where the latter crosses the river. From that point eastward to Kai-feng the line will be 170 li long, and westward to Ho-nan Fu it will cover 250 li. These two branches of the Luhan to be built by a Belgian party (groupe), which will make a loan to build them.

This proposal was accepted by a decree dated the 30th day of the 10th moon of 25th year of the present reign.

Monsieur Rouffart, the representative of La Compagnie Générale de Chemins de Fer et de Tramways en Chine, has asked us by letter to undertake this building, and we sent a Chinese official to accompany him in his preliminary study on the ground. After said study, Monsieur Rouffart estimated the probable cost of these two branches at one million pounds sterling, or 25,000,000 francs; and for all other terms the contract from Peking to Hankow are to be followed.

Under date of the 29th day of the 12th moon of the 28th year of the present reign the Wai-Wu-Pu wrote to me that I was to discuss the terms of the contract with Monsieur Rouffart, and it asked me to settle the matter as promptly as possible.

Considering that Monsieur Rouffart has full powers from the Compagnie Générale de Chemins de Fer et de Tramways en Chine to negotiate this business for it, we, Director-General of the Imperial Chinese Railway Company, and Monsieur Armand Rouffart, representing the Compagnie Générale de Chemins de Fer et de Tramways en Chine, hereby enter into a contract for a loan, the product of which shall be applied to the building of the Railway from Ho-nan Fu to Kai-feng Fu.

Before signing the contract the Director-General of the Imperial Chinese Railway Company has submitted said contract for Imperial sanction, and it has been approved under date of ———.

This decree shall form Annex 1 of the present contract. In virtue of the above the Director-General, on account of the Chinese Government, makes a gold 5 per cent. loan for the sum of 25,000,000 francs, or 1,000,000 pounds sterling. This loan shall be known as the Chinese Government 5 per cent. Gold Foreign 1903 Loan (*Emprunt du Gouvernement Chinois 5 pour cent ou Extérieur* 1903).

Article 2.—This loan shall be represented by 50,000 bonds of 500 francs gold each

These bonds, the text of which is annexed to the present contract (Annex 2), shall be signed in the name of the Chinese Government by the Minister Plenipotentiary of China at Brussels.

They shall be delivered in fractional bonds (coupons) of 1 to 2 bonds, in such proportion as the Compagnie Générale de Chemins de Fer et de Tramways en Chine may request, the total number not to exceed 50,000; the expense of making these bonds shall be charged to the Compagnie Générale de Chemins de Fer et de Tramways en Chine. They shall bear 5 per cent. interest a year on the nominal capital payable in gold.

Interest shall run from the date of payment of the product (of the sale) of the bonds, and shall be payable the 1st January and 1st July of each year.

Coupons which have become due and have been paid shall be classed in numeric order by the Compagnie Générale de Chemins de Fer et de Tramways en Chine, and at its expense, and it shall then send them to the Imperial Chinese Railway Company at Shanghai to be cancelled. If the returned coupons are lost in transmission the Compagnie Générale de Chemins de Fer et de Tramways en Chine must publish the numbers of the paid and lost coupons in four different newspapers, and transmit to the Imperial Chinese Railway Company a declaration stating the loss.

Article 3.—The loan shall be redeemed in twenty years counted from the tenth year of issue, by the method of drawing by lots in the offices of the Compagnie Générale de Chemins de Fer et de Tramways en Chine, in accordance with the table annexed to the present contract (Annex 3). The drawings by lots shall take place on the third Wednesday of April in each year. The first drawing shall take place on that date beginning with the tenth year from the date of issue of the loan.

The numbers of the drawn bonds shall be published in four newspapers at the expense of the Compagnie Générale de Chemins de Fer et de Tramways en Chine.

Article 4.—The bonds drawn by lots shall be paid in gold at their par value on the date on which fall due the coupons following the date of the drawing. Bonds presented for refunding must have attached all coupons still unpaid, and the amount of missing coupons will be deducted from the capital to be reimbursed. Interest on bonds will cease to accrue from the day set for reimbursement. Paid off bonds shall be classified and sent back by and at the expense of the Compagnie Générale de Chemins de Fer et de Tramways en Chine to the Imperial Chinese Railway Company at Shanghai to be cancelled. If these bonds should be lost on the way, the Compagnie Générale de Chemins de Fer et de Tramways en Chine shall publish the numbers of the paid and lost bonds in four different newspapers, and transmit to the Imperial Chinese Railway Company a declaration stating the loss.

Article 5.—The Chinese Government denies itself the right, before the date fixed for the first amortization, to fix a larger amortization, or to refund the whole loan or to convert it. After that date it shall be free to refund the loan at whatsoever time it chooses before the dates of payment, and, the refunding made, all contracts shall be declared annulled.

Article 6.—Coupons and bonds shall be paid off in francs in the office or offices entrusted with the management of the loan.

Article 7.—Interest payment and the reimbursement of the bonds provided for in the present loan shall be guaranteed by the gross revenues of the Imperial Chinese Government.

Furthermore, in virtue of the authorization, already granted by the Chinese Government, and in accord with it, the Imperial Chinese Railway Company declares that it makes a preferential assignment in favor of the payment of interest and of the capital of the present loan, and that it cedes and assigns in favor of said obligations all the net receipts of the line from Kai-feng Fu to Ho-nan Fu, after the regular payment of all expenses of management and operating, the whole as elsewhere indicated in an operating treaty concluded between the Imperial Chinese Railway Company and the Compagnie Générale de Chemins de Fer et de Tramways en Chine, said treaty being annexed to and forming an integral part of the present contract. This assignment is made exclusively and irrevocably until complete redemption of the bonds of the present contract.

Article 8.—After auditing and noting the net receipts the Imperial Chinese Railway Company shall direct the Compagnie Générale de Chemins de Fer et de Tramways en Chine to deposit these funds in a bank to be chosen by common consent. This bank shall convert into gold, in accordance with the provisions stipulated in the contract made between the Bank, the Imperial Chinese Railway Company, and the Compagnie Générale de Chemins de Fer et de Tramways en Chine, and to the best advantage of the Imperial Chinese Railway Company, the sums paid it, and up to the full amount needed to ensure the service of the loan at the next semi-annual payment.

These deposits shall continue to be made until the sum needed for the integral service of the loan on the following date of payment has been realized in gold, and in such manner that said service is ensured at least three months before the date of the semi-annual payment.

The bank designated for the receipt of these sums shall use them to the best advantage of the Imperial Chinese Railway Company. The account in which these sums shall be carried shall be charged twenty days before the date of payment with the sums needed or the service of the loan, interest, amortization, money expenses, difference of exchange, and the commissions provided for by the present contract.

Article 9.—The bank in which shall be deposited the loan funds shall have the right without further authorization to levy on said funds on deposit the amount of the coupons to be paid during the construction period; but it shall advise the Director-General as these payments are made.

Article 10.—To ensure the guarantee just given to the bonds of the present contract, the Imperial Chinese Railway Company grants these bonds a special first-class guarantee on the railway from Kai-feng Fu to Ho-nan Fu, on its fixed and rolling stock and its receipts.

The special assignment is accepted in the name of the bondholders by the Compagnie Générale de Chemins de Fer et de Tramways en Chine. In case of non-fulfilment of the obligations assumed by the Imperial Chinese Railway Company in the present contract, the Compagnie Générale de Chemins de Fer et de Tramways en Chine shall have full power to take such action against said property as may result from this special assignment, and in that case the provisions of the operating treaty hereto annexed must always be strictly observed.

Article 11.—The preceding provisions do not conflict with the personal responsibility of the Chinese Government concerning the present loan, as said responsibility is specified in Article 7.

Consequently the Imperial Chinese Government pledges itself to make up the sum necessary for the service of the loan in gold, in case the sums derived from the net revenues of the line from Kai-feng Fu to Ho-nan Fu, and paid in by the Compagnie Générale de Chemins de Fer et de Tramway, en Chine, entrusted with this management by the Imperial Chinese Railway Company, to the bank chosen, should not produce after conversion into gold, and three months before the date of the following semi-annual payment, an amount sufficient to ensure said service.

In the case, and on demand made it, the Imperial Chinese Government shall be bound to put at the disposal of the Compagnie Générale de Chemins de Fer et de Tramways en Chine sixty days before the following semi-annual payment falls due, in gold or in securities of sufficient amount to produce it in gold, the sum stated to it as being needed to make up said service.

Article 12.—From the sums derived from the deposits by the Compagnie Générale de Chemins de Fer et de Tramways en Chine, entrusted with that duty by the Imperial Chinese Railway Company, or from the supplementary sums paid by the Chinese Government, the Compagnie Générale de Chemins de Fer et de Tramways en Chine shall, in proper season, place at the disposal of the firms entrusted with the management of the loan the amounts necessary therefor according to the needs as determined during the preceding half-year.

Article 13.—The Imperial Chinese Government will pay to the firm entrusted with the management of the loan a commission of ¼ per cent., that is to say 25 francs for 10,000 francs on the amount of the coupons paid, and a commission of ⅛ per cent. on the amount of bonds drawn by lots or redeemed under anticipated refundings. The amount of this allowance shall be settled every six months; and, in case of insufficiency, it will be paid at once by the Imperial Chinese Government.

Article 14.—The Imperial Chinese Government binds itself to respect and cause to be respected the privilege provided for in favor of the bonds under Article 9 of the present conventions, and to hold free of all Chinese taxa-

tions whatsoever the bonds and coupons as well as all operations whatsoever connected with the management (service) of the loan. The preceding (provision) concerns the bonds and coupons of the loan and the operations relating to the management of the loan, and which shall be exempt from all taxation. But the taxes now in force in China, such as land rent and the taxes which the Chinese Government may impose hereafter, such as a stamp tax levied on the general commerce of China, the railway provided for in the present contract, and its traffic shall bear them. It being understood that no exceptional law shall be passed for the railway in question, and that the rule which shall be applied to it shall be that of all Chinese railways.

Article 15.—Coupons which have not been presented for cashing within five years after the date on which they fall due shall be lost by limitation (*prescripts*) in favor of the Imperial Chinese Government. The limit of time shall be of thirty years in case of redeemed bonds.

On the death of any bondholder of the present loan, the bonds shall be transferred and shall belong to the heirs, in conformity with the inheritance laws in force in the country of the bondholder.

Payment of coupons and refunding of bonds shall take place in time of peace and in time of war to the holders, whether they be subjects of friendly states or of hostile ones. In case of loss, theft, or destruction of bonds of the present loan, the Imperial Chinese Government will authorize the Compagnie Générale de Chemins de Fer et de Tramways en Chine to replace the bonds by new ones at its own expense, whenever it shall have satisfactory evidence of the loss or destruction of the bonds and title deeds (*des titres et des droits*) of the claimants.

Article 16.—The Imperial Chinese Government, through its representatives, shall at once take steps and shall furnish the necessary documents to secure the official listing (of the bonds) in the Bourses of the capitals of Europe.

Article 17.—The whole amount of the present loan, amounting to twenty-five millions of francs, represented by 500,000 bonds of 500 francs each, possession to be had from the date of payment, is bought outright (*pris ferme*) by the Compagnie Générale de Chemins de Fer et de Tramways en Chine, at the price of 90 per cent., that is for the sum of twenty-two millions five hundred thousand francs.

If on the date of issue the bonds for the loan for the Hankow-Peking Railway should be quoted below 482.50 francs inclusive of the interest payable (*en tenant compte de la jouissance*) the two contracting parties would have the right to cancel the present contract.

Article 18.—The Compagnie Générale de Chemins de Fer et de Tramways en Chine will deposit the full amount of the proceeds of this purchase in the banks designated by it after agreement with the Director-General of the Imperial Chinese Railway Company, on delivery of the 50,000 bonds bought outright (*achetées fermes*.)

The sum needed for the building of a fixed length of line shall be transferred to Shanghai, and deposited in such bank as is mutually agreed upon.

This bank shall convert into taels the sum in accordance with the instructions of the Director-General of the Imperial Chinese Railway Company. A sum on the available proceeds of the loan, at least one-tenth of the proceeds of the conversion into taels, shall be deposited in a bank in China, to be chosen by the Director-General of the Imperial Chinese Railway Company, and under his sole responsibility, and this deposit shall be applied to expenses at such times as the rates for the conversion of European values into taels may be unfavorable. It being well understood that the depository establishments shall only be required to deliver these sums under the conditions and limitations mentioned in Article 20 here below

Article 19.—The construction work for the whole of the line shall be under the direction of the Chief Engineer chosen by the Compagnie Générale de Chemins de Fer et de Tramways en Chine, entrusted with this work by the Imperial Chinese Railway Company and for its account.

The Chief Engineer shall prepare all studies, plans, tracings, estimates for the whole of the line; he shall direct the carrying out of all works and shall order the materials, tools, and supplies necessary to ensure the regular working of the line. Nevertheless all these operations must be submitted for the approval of the Director-General of the Imperial Chinese Railway Company.

As the line from Kai-feng Fu to Ho-nan Fu is a feeder (*confluent*) of the Luhan, the width of the rails and the general methods of operating must be the same as on the Luhan.

With the exception of the supplies of material and the expenses of all kinds duly authorized by an act signed by the Director-General of the Imperial Chinese Railway Company, and paid at Brussels, the Imperial Chinese Railway Company shall place at the disposal of the Compagnie Générale de Chemins de Fer et de Tramways en Chine, from the proceeds of the loan, the sums necessary to make, without any exceptions, all necessary payments for the carrying out of the works, the salaries of the staff under its orders, and in general for all expenses of whatsoever kind. But these payments must always be previously approved by the representatives of the Director-General.

After the signing of the present contract the Imperial Chinese Railway Company directs the Compagnie Générale de Chemins de Fer et de Tramways en Chine to choose an Engineer with experience in construction work, who shall direct the construction of the line and prepare studies, plans, tracings, and specifications for the whole line, and the whole shall be submitted for the approval of the Director-General of the Imperial Chinese Railway Company. Said Chief Engineer shall be appointed, on recommendation of the Compagnie Générale de Chemins de Fer et de Tramways en Chine, by the Director-General of the Imperial Chinese Railway Company, to whom he is directly responsible.

The Director-General of Chinese Railways shall fix the amount of his salary, after agreement with the Compagnie Générale de Chemins de Fer et de Tramways en Chine.

The Chief Engineer shall prepare a tabulated plan of the European staff necessary for the building, and shall submit it for the approval of the Director-General of the Imperial Chinese Railway Company. This staff shall be engaged by the Compagnie Générale de Chemins de Fer et de Tramways en Chine, which shall put it under the order of the Chief Engineer.

As regards the Chinese staff, whether technical or other, the Director-General of the Imperial Chinese Railway Company reserves to himself the right to choose it, and to put it under the orders of the Chief Engineer. No Chinese or European employee shall be engaged without the assent of the Director-General of the Imperial Chinese Railway Company. It is understood that Chinese subjects who have made special studies, or who have acquired sufficient practical knowledge, may be presented by the Director-General of the Imperial Chinese Railway Company to the Chief Engineer, who shall employ them on the works under the same conditions as European employees. As to the technical service, the Chinese staff as well as the European staff shall be under the direct orders of the Chief Engineer. But the Director-General reserves the right to demand the instant dismissal of any agent of whatever nationality on condition that the demand for dismissal is based on serious reasons.

The Director-General likewise reserves the right to depute on the works a special representative with full powers. The salary of said representative, as also the running expenses of the head office at Shanghai, shall devolve on the Kai-feng Fu to Ho-nan Fu railway concern.

Orders for materials, tools, and furniture for the construction of the line, and for its orderly working, shall be submitted through the Chief Engineer to the Director-General for approval.

Orders as well as contracts for work shall be drawn up, after mutual agreement, by the Chief Engineer and the representative of the Director-General.

Statements of the sums paid for supplies of materials and expenditures of every description settled in Europe shall be sent with all vouchers and explanatory documents to the Imperial Chinese Railway Company every three months.

Every month the Chief Engineer, in agreement with the Imperial Chinese Railway Company, shall request the bank in which are deposited the loan funds, to pay the amount necessary for the general expenses of the undertaking during the month following, to an agent chosen by the Director-General of the Imperial Chinese Railway, and against receipt duly signed by the latter and under the responsibility of the Director-General of the Imperial Chinese Railway Company. This agent shall not surrender any of the funds except under the signature of both the Chief Engineer and the representative of the Director General.

The Compagnie Générale de Chemins de Fer et de Tramways en Chine shall not therefore be obliged to meet any expense for the building out of its own money.

Said Company shall endeavour to finish the work on the line within two years from the date on which the railway from Hankow to Peking shall be opened to traffic as far as the Yellow River, because materials will then be easily transported.

It is well understood that the Imperial Chinese Railway Company will not pay the expenses of the office in Brussels, except the necessary expenses for the studies, orders, receipt of materials, living of staff; consequently the personal expenses of the directors, allowances (indemnities), etc. will continue to be chargeable to the Compagnie Générale de Chemins de Fer et de Tramways en Chine.

Article 20.—The price paid for the above mentioned bonds being exclusively assigned to the building of the railway from Kai-feng Fu to Ho-nan Fu, the Compagnie Générale de Chemins de Fer et de Tramways en Chine, or the bank having received the deposits, would have the right not to give up these funds in case one of the deposits should not have been applied as provided for, and also in case the delegates of the Compagnie Générale de Chemins de Fer et de Tramways en Chine were not enabled by the Imperial Chinese Railway Company to continue the direction of the construction works.

The balance on hand, if any should exist after the completion of the works, shall be held subject to the order of the Imperial Chinese Railway Company. After the completion of the works and the organization of traffic, if the funds of the issue should still show a (credit) balance, said balance shall be paid in full to the Imperial Chinese Railway Company, who shall remit it to the Chinese Government.

If the loan provided for in the present contract should not be enough to finish the line or to organize traffic, the Compagnie Générale de Chemins de Fer et de Tramways en Chine is authorized by the present (contract) to make a further loan on the same terms as in the present contract without being obliged to make a new contract.

Article 21.—Within nine months following the date of the signing of the present contract, the Compagnie Générale de Chemins de Fer et de Tramways en Chine shall buy outright from the 50,000 bonds a first lot for 12,500,000 francs at the price of 90 per cent. for the purpose of building the first portion of the line. The balance of the issue, or 12,500,000 francs, for the building of the second section of the line, shall be taken at the same price and in one or two instalments by (public) subscription or otherwise. But it remains well understood that the expense of issuing the loan falls on the Compagnie Générale de Chemins de Fer et de Tramways en Chine.

If the Compagnie Générale de Chemins de Fer et de Tramways en Chine should begin simultaneously the building of both sections of the road on either side of the Luhan line, it shall have the right to make but one issue for the whole loan.

Article 22.—Preliminary studies of the line after the signing of the present contract are at the expense of the Imperial Chinese Railway Company, and are to be provided for out of

the loan funds. Said studies of the line shall be provided for from the revenues derived from the loan, and they shall begin on the section running from Kai-feng Fu to the junction with the Hankow-Peking line. They shall afterwards be made over the other sections. From the Luhan junction to Ho-nan Fu will constitute the second section.

The proceeds from the first purchase of bonds shall be applied to the building of the portion of line from Kai-feng Fu to the Luhan junction.

The preliminary studies shall begin within nine months from the date of signing the present contract.

The Compagnie Générale de Chemins de Fer de Tramways en Chine shall deposit one million francs to the order of the Imperial Chinese Railway Company. This sum is considered as an advance on the loan for the railway from Kai-feng Fu to Ho-nan Fu and is to be specially devoted to expenses for study of the line.

The depository bank shall not surrender this sum except in accordance with the provisions of Article 20 of the present contract.

This advance shall produce an annual 6 per cent. interest without rate of issue, but it shall be refunded with the proceeds of the first sale of 12,500,000 francs, which must be issued within nine months from the signing of the present contract; a portion of the proceeds of this sale will be issued to refund the advance first made.

Article 23.—Should the Compagnie Générale de Chemins de Fer et de Tramways en Chine finish satisfactorily the work for the railway from Kai-feng Fu to Ho-nan Fu, complying strictly with all the provisions of the present contract, and should the Chinese Government decide to extend the railway from Ho-nan Fu to Si-ngan Fu, the Director-General of the Imperial Chinese Railway Company agrees to come to an understanding preferably with, and to grant an option for the loan necessary for said undertaking to, the Compagnie Générale de Chemins de Fer et de Tramways en Chine in conformity with the provisions and conditions of the present contract.

Article 24.—The present contract shall only be binding on the Compagnie Générale de Chemins de Fer et de Tramways en Chine if it is assumed that, exclusive of what may be furnished and produced in China, and bought at the same prices as the European product delivered in China, the total amount of materials and supplies necessary for the building and operating of the railway from Kai-feng Fu to Ho-nan Fu will be asked of and ordered from the Compagnie Générale de Chemins de Fer et de Tramways en Chine, which will fill these orders under the best possible terms.

The carrying out of this provision of this contract by the Imperial Chinese Railway Company will be proven by the orders for materials for each of the sections of line undertaken.

Orders from the Compagnie Générale de Chemins de Fer et de Tramways en Chine will be free from all duties or from likin on importation or in transit across Chinese territory.

If proof of the granting of this franchise is not forthcoming before the end of the month following the date on which the Belgian Government should inform the Compagnie Générale de Chemins de Fer et de Tramways en Chine that it has received notification concerning Article 28, said Company reserves the right not to consider itself bound.

It reserves the same right if extraordinary events should take place, such as a war, or if there were absolute impossibility to secure subscribers for the bonds.

Should on its side the Compagnie Générale de Chemins de Fer et de Tramways en Chine not fulfil within the given delays the obligations it has assumed by the present contract, it shall become annulled. The Imperial Chinese Railway Company would be at liberty to enter into contract with whosoever it chose, and to give up the service of the Chief Engineer.

It is expressly agreed that the works and mines under the control of H. E. Sheng Kung Pao shall have a preferential right for all orders necessary for the building and operating of the railway which is the object of the present contract. The word preference applies to equality of specifications and prices, including transportation, as if the orders had to be filled abroad and delivered in China.

All orders made in China shall be free of duties and of likin on Chinese territory.

Article 25.—In case of disagreement between the Compagnie Générale de Chemins de Fer et de Tramways en Chine or its delegates and the Imperial Chinese Government or the Imperial Chinese Railway Company, such conflicts or disagreements shall be settled by the decision of a member of the Ministry of Foreign Affairs and the Minister of Belgium in China. In case of non-agreement the third arbitrator shall be the Dean of the Diplomatic Body at Peking.

Article 26.—Should the Minister of Belgium request the Chinese Minister of Foreign Affairs, the latter shall be bound to give cognizance of the title (*notifier le titre*) to the Minister of the foreign country mentioned to him as subscribing to the issue of bonds. The present contract is drawn up in triplicate, one copy for the Chinese Government, one for the Imperial Chinese Railway Company, and the third for the Compagnie Générale de Chemins de Fer et de Tramways en Chine.

In case of doubt or disagreement, the French text alone shall be authoritative in interpreting the present contract.

The present contract shall be submitted through the proper channel for the Imperial Sanction, and when that shall have been obtained, the Minister of Foreign Affairs shall notify, by official despatch, the Representative of Belgium at Peking, and in case of necessity, the Representative at Peking of the foreign country to whom the title shall be notified.

Article 28.—The Compagnie Générale de Chemins de Fer et de Tramways en Chine has been organized at Brussels the 26th March, 1900, under Belgian law (*régime belge*) and with Belgian capital.

The Imperial Chinese Railway Company only recognizes for the purposes of the present contract the above-mentioned contracting Belgian Company, which shall never have the right to transfer the present contract to other nations nor to persons of another nationality than Belgian.

Article 29.—The present contract includes the right to build little branch lines from the line from Kai-feng Fu to Ho-nan Fu for the purpose of securing traffic and establishing useful relations. These branch lines shall only be built after agreement with the Director-General and the Governor of Ho-nan and in accordance with plans approved by them.

RUSSIA

AGREEMENT BETWEEN THE CHINESE GOVERNMENT AND THE RUSSO-CHINESE BANK FOR THE CONSTRUCTION AND MANAGEMENT OF THE CHINESE EASTERN RAILWAY.

Imperial sanction received by the Chinese Envoy to Russia, Hsu, dated 29th August, 1896. *Agreement signed 8th September,* 1896.

1.—China and Russia establish a Company, to be called the Chinese Eastern Railway Co., to construct and manage this railway. The seal to be used by the Company will be issued by the Chinese Government. The regulations of the Company will be in conformity with those of Russian Railway Companies. Shares may only be bought by Chinese and Russians. The Director of the Company will be appointed by China. His remuneration will be provided for by the Company. He may live in Peking. His duty will be to supervise the task delegated to the Company by China, and to ascertain whether its obligations are faithfully performed. All business between the Company and the Chinese Government or any Chinese officials, either in Peking or the provinces, will also be managed by the Director. The Director will also investigate from time to time the accounts of the Company with the Chinese Government. An agent must be stationed in Peking for convenience of consultation.

2.—For the purpose of surveying the course of the railway, the Chinese Director will depute an officer to act in conjunction with the Company's Engineer and the local officials along the line of route, who will arrange matters satisfactorily. Measures must be taken to pass round all houses, graves, villages, and towns on the course of the railway.

3.—Within twelve months of the issue of an Imperial Edict sanctioning this Agreement the Company must have commenced work on the railway; and within six years from the date of the completion of the survey for the line and the handing over to the Company of the necessary land the whole line must be completed. The gauge of the line must be that of the Russian Railway, *i. e.*, 5 Russian feet, equivalent to 42½ Chinese inches.

4.—The Chinese Government will order all local officials concerned to do their utmost to assist the Company in regard to all material required for the construction of the railway, in engaging laborers and boats, carts, men, and horses for transport purposes, and in the purchase of grain and fodder. All these must be paid for by the Company at market rates. The Chinese Government will also afford facilities for transport.

5.—The Chinese Government will take measures for the protection of the line and of the men employed thereon. The staff, Chinese and foreign, necessary for the line will be engaged as required by the Company. All crimes and lawsuits arising on the land of the Company will be dealt with by the local officials in accordance with Treaty.

6.—As regards the land required by the Company for constructing, managing, and protecting the line and adjacent land, for procuring sand, earth, stones, and lime, if the land be Government land it will be given the Company without payment. If privately owned, the Company will provide funds for payment to the proprietors at market rates, either in one payment or as yearly rent. All the Company's land will be exempted from land tax. As soon as the land comes under the management of the Company, they may erect thereon any buildings and carry on all kinds of work, and they may establish a telegraph line thereon worked by the Company for the Company's use. With the exception of mines, for which special arrangements must be made, all receipts of the Company for transport of passengers and freight telegrams, etc., will be exempt from all taxation.

7.—All materials required by the Company for the construction and repair of the line will be exempt from taxation.

8.—All Russian troops, naval or military, and munitions of war, moved by the Russian Government by this railway, must be conveyed by the Company directly across the border. Apart from slight detentions *en route*, incidental to transfers, no other delays will be permitted for any cause.

9.—Any foreign passengers by this line who may proceed into the interior away from the railway must be provided with Chinese passports authorising them to proceed. Any person unprovided with such passports must be forbidden by the Company to proceed into the interior.

10.—All goods and baggage coming from Russian territory, and again entering Russian territory by this line, will be exempt from taxation, but such goods and baggage, with the exception of personal luggage with passengers, must be carried by the Company in special vans,

and sealed by the Customs officers on entering Chinese territory, and on leaving Chinese territory they must be examined by the Customs officers to ascertain that the seals are intact, in which case they will be allowed to pass. If it be found that the seals have been opened *en route* the goods will be confiscated.

As to goods conveyed by this line from Russia to China or from China to Russia, they will pay duty according to the Treaty tariff, *i. e.* an import or export duty, as the case may be, but subject to a reduction of ⅓ of the tariff rate. If such goods be conveyed to the interior they must pay transit duty in addition, *i. e.* half the amount of the duty already paid. Transit duty being paid, they are not to be taxed again on passing Customs stations or likin barriers. But if transit duty be not paid, they must pay duty at stations and at likin barriers. China must establish Customs stations at the two points where the line crosses the frontier.

11.—Fares for passengers, freight for goods, and charges for loading or unloading will be fixed by the Company. Chinese Government despatches and letters must be carried by the Company free of cost. Chinese troops and munitions of war will be carried at half rates.

12.—From the day of completion of the railway and the commencement of traffic, for a period of eighty years, all profits made by the line shall belong to the Company solely. Any loss must likewise be borne by it; the Chinese Government cannot be responsible. After eighty years the line and all its property are to revert to the Chinese Government without payment.

Thirty-six years after commencement of traffic China may take over the line on payment of the following and all capital and all moneys owed on account of the line and interest. As to profits made by the Company, should there be any not distributed to shareholders, these must be taken to be capital returned and deducted from the price paid for the line. China must actually pay over the amount of purchase to Russia before receiving possession of the line.

On the day the line is completed and traffic commenced, the Company will pay the Chinese Government five million Treasury taels.

PRELIMINARY AGREEMENT AND CONTRACTS CONCERNING THE CHENGTING-TAIYUAN (CHENG-TAI) RAILWAY, 1898-1903.

(1) DRAFT OF AGREEMENT BETWEEN FANG, SUPERINTENDENT OF THE LIU-LIN-TAIYUAN RAILWAY CO. (UNDERSTOOD TO BE ACTING UNDER AUTHORITY FROM THE GOVERNOR OF SHANSI) AND POKOTILOW, DIRECTOR OF THE RUSSO-CHINESE BANK, FOR THE PROVISION OF A LOAN TO CONSTRUCT A RAILWAY FROM LIU-LIN (I. E. CHENGTING, A POINT ON THE PEKING-HANKOW LINE TO THE SOUTH OF THE HU-TO RIVER) TO TAI-YUAN-FU IN SHANSI.

The line is to run from Chengting to the coal mines on the Wei-shui river to the north of Pingting, and thence to Taiyuan. The cost—including "official profits" (kuan-li)—is estimated at Tls. 6,800,000. As it is impossible to raise this amount in China, Fang agrees to accept a temporary advance form the Russo-Chinese Bank on the following terms:

1. A Company will be formed to construct the railway, and the Company will borrow Tls. 6,800,000 necessary from the Bank. Interest 6 per cent from the date of advance.

2. The exact amount required will be determined after the completion of the surveys and estimates.

Until the railway is opened to traffic the interest will accrue, and be added to the principal of the loan. Should the traffic receipts during the two years following the opening be insufficient to pay the interest the deficiency will also be added to the loan capital. At the close of these two years, all the moneys owing to the bank by the Company on principal and interest must be reckoned up and interest paid on the full amount at 6 per cent per annum. All surplus profits, excluding "official profits" (kuan-li) made within five years from the opening of the railway to be deposited in the Bank, the amount to go to the redemption of the loan at the end of the five years. The Bank to pay 4 per cent on the amounts so deposited.

Dating from the sixth year after the opening of the line the Company agree to pay off the interest and principal due to the Bank by quarterly instalments, extending over 25 years; such instalments to be paid in gold at current rates.

3. The Company may at will redeem the loan before the limit of the time specified.

The Company may issue share certificates to the amount of the loan, which are to be deposited with the Bank as security. Within the 25 years' limit certificates to the amounts redeemed from year to year will be handed over to the Company by the Bank. If, before the loan is redeemed, the Chinese public consider these shares a good investment, the Company may purchase them from the Bank and issue them a a premium of 20 per cent.

Should the Company redeem the debt due to the Bank in either of the two ways stated above, the Bank will have no further concern with the railway.

4. The Bank will decide in consultation with the Company all questions of route gauge, position of stations, amount of rolling stock, etc. All the construction and works will be executed under the supervision of the Company.

The Bank engages to use local materials and labor as far as possible, and in any case to spend the greater part of the loan on the spot. As little material as possible is to be procured from abroad, but whatever is thus obtained must come from Russian or French territory. All such materials are to be purchased by the Bank at the most reasonable prices, and questions as to the reasonableness of the prices are to be settled by reference by the Company to the Chinese Ministers in Russia and France.

5. During the whole 30 years or-and while the loan is unredeemed, the high authorities of Shansi shall, at the request of the Company, interdict the construction of another railway or other mechanical means of transport between Liu-lin and Taiyuan-fu, as such would be detrimental to the interests of this railway.

6. The Company will see to the acquisition of the land required for the railway in accordance with the provisions of Chinese law. The regulations for the purchase of the land will be drawn up by the Company and approved by the Governor of Shansi who will be requested to instruct the local authorities to surrender or let whatever Government land is required for the railway line. As to private ground, graves, bridges, rivers, and roads, the regulations of the Tientsin railways will be followed, and reasonable compensation will be awarded. The local officials are to lend every assistance and to check disorder. In other matters the established precedents ruling in the railways already opened to traffic in Chihli are to be followed.

The price of the ground will be arranged by the Company with the owner, and the money handed over in the presence of a representative at the Bank specially appointed for that purpose. This will prevent irregularities.

The Bank will prepare detailed plans of the railway and send them to the Company, and the Company are given six months from the date of receipt of the plans within which to secure the land required for the track.

7. The Governor of Shansi will be moved to exempt from likin charges all railway material. Import and transit dues paid to the Imperial Maritime Customs are not included in this exemption.

8. The administration of the railway will rest with the Company. Mr. Fang will procure the assistance he needs, and from the date of the approval of this agreement Tls. 10,000 a year will be advanced to him to cover the salaries of himself and assistants.

Before the opening of the railway and traffic these salaries will be advanced by the Bank and the amounts will be added to the loan accounts. After the opening they will be paid out of receipts by the Company. If there is a surplus after the payment of all expenses out of the receipts, it will rest with the Company to decide whether the remuneration above mentioned shall be increased. The Foreign Agent of the Bank will be present at all meetings of the Managing Officers and will exercise supervision over all matters of accounts, machinery, etc.

9. The Foreign Agent will be specially appointed by the Bank after the completion of the railway to inspect the accounts, receipts, and expenditure. The accounts will be kept after foreign methods. He will also inspect the permanent way, machinery, stations, etc., and see that they are kept in good working order, and free from dilapidations. He will have foreign assistants, but their number will be kept as low as possible. The salaries of the Agent and his staff, which are not to exceed 100,000 francs or say Tls. 30,000 a year, will be paid by the Company. With these exceptions the personnel will be Chinese. As a temporary arrangement, however, China not possessing capable machinists, foreign artificers will be engaged by the Bank to work the machinery, but as soon as Chinese are available for this purpose the foreigners will be sent home. It is fully expected that Chinese will be employed as machinists before many years are over, and to attain this end the Superintendent is at liberty to establish engineering and mining schools near at hand, and to engage foreign instructors to teach 10 to 20 selected Chinese youths of capacity who may also be sent abroad to complete their knowledge.

The Board will assist the Company as far as possible in its efforts to dispense with foreign assistance and to secure capable Chinese machinists without delay.

10. After the completion of the railway the yearly surplus, if any, left after payment of working expenses and "official profits," is to be dealt with as follows:

5-10ths to the Company. Should this 5-10ths amount to 30,000 taels or over, the Superintendent's salary will be paid out of it; if the 5-10ths do not amount to Tls. 30,000 the salary will form part of the working expenses.

2.10ths to the State.

1-10th to the Trade Bureau to be used for public purposes, and 2-10ths to the Bank—this payment to cease at the end of 30 years from the opening of the line. Should the Company be able to redeem the loan before this limit of time as provided for under Article 3, the Bank's 2-10ths will cease with such redemption.

11. The Bank will first undertake the construction of the first section to the coal mines of Ping-ting; this to be completed within 3 years from the acquisition of the ground required, according to the plans. This section finished, the Bank engages to begin work on the 2nd section from the coal mines to Taiyuan Fu within two years. If it fails to do so the Company is free to discharge the Bank from the contract and hand the work over to others to undertake. The Bank, in this case, is to hand over the surveys, estimates, and other documents relating to the 2nd section to the Company without payment therefor and without objection to the Company's action.

12. In case of default in the payment of principal and interest, the administration of the railway will pass temporarily into the hands of the Bank, but the Company will continue its supervision. The Superintendent, etc., will continue to meet and consult as before and the salaries will continue to be advanced in the manner stated in Article 8. The Bank will not under these circumstances be considered as entering into possession of the railway; it will simply administer on behalf of the Company until the loan and interest are paid in full, when the administration will be returned to the Company.

13. Superintendent Fang will move the local authorities to permit the Company, through the Trade Bureau, to select a few coal and iron mines in the country adjoining the railways;

places granted to other persons being excluded from the selection.

Within a year from the approval of this agreement the Bank will indicate a few coal and iron mines which it will be able to work as soon as the necessary authorization is received from the Governor of Shansi through the Trade Bureau. But the number of mines thus selected must not exceed four or five.

Superintendent Fang will also be authorised to choose a convenient site for glass works, the funds for the establishment of which will be provided by the Bank.

The financial terms relating to the mines and glass works will follow the same lines as those relating to the railway; 2-10ths of the surplus after payment of working expenses and "official profits" will go to the Bank in payment of principal and interest. In case of default the management of all the mines and the glass-works will revert to the Bank who will retain it until the loans and interest are redeemed.

14. This loan being a commercial arrangement made between Russian and Chinese merchants, it is understood that the Governments of China and Russia are in no way concerned.

15. This instrument is only preliminary. When it has been aproved by the Governor of Shansi and authorised by the Emperor, it will as it stands become definite.

(2) LOAN AND OPERATING CONTRACTS FOR THE CHENG-TING AND TAI-YUAN RAILWAY.

Extracts.

(*Translation*).

LOAN CONTRACT

Between the undersigned:

(1) The Imperial Chinese Railway Company, represented by H. E. Sheng Hsuan-huai, its Director General, duly empowered by the Chinese Government;

(2) The Russo-Chinese Bank, represented by Mr. C. R. Wehrung, one of its directors, with full powers, acting for said Bank;

It has been agreed as follows:

ARTICLE I.

Under the terms of the Imperial Edict of July 8, 1897, and May 17, 1898, i. e., 9th day, 6th moon, 23rd year, and the 24th day, 3rd moon, 24th year of the reign of H. M. Kuang-hsu, the Governor and the Director of the Commercial Bank of Shansi were authorised to sign a loan contract with the Russo-Chinese Bank for the building of a railway from Cheng-ting Fu to Tai-yuan Fu.

This line, having a length of about 250 kilometers, forms a natural branch of the Hankow-Peking line; consequently the Governor of Shansi, in a report dated June 25, 1902, i. e. 18th dav, 5th moon, 28th year of the reign of H. M. Kuang-hsu, proposed to the Chinese Government to instruct the Director of the Imperial Chinese Railway Company to personally take up the matter.

The recommendation was approved, and H. E. Sheng Hsuan-huai, Director General of the Imperial Chinese Railway Company, received instructions from the Chinese Government, in virtue of a Decree of September 7, 1902, i. e. 6th day, 7th moon, 28th year of the reign of H. M. Kuang-hsu, as a consequence of a joint report presented by the Wai-wu-pu and the Central Bureau of Mines and Railways, to negotiate a new loan contract for said railway with the Russo-Chinese Bank. Before signing the present contract, H. E. Sheng Hsuan-huai has submitted it for ratification by the Chinese Government which has ratified it by a Decree of ...... of which a copy is annexed to the present contract (Annex No. 1.)

Under the terms of this Edict H. E. Sheng-Hsuan-huai has decided to make a State foreign 5% gold loan, of a nominal value of 40,000,000 francs.

This loan will be known as the Chinese 5% 1902 Loan.

It is understood that the present contract, after being signed, shall annul all preceding contracts relating to the railway from Cheng-ting Fu to Tai-yuan Fu, signed by the Governor of Shansi, in favor of the Russo-Chinese Bank.

ARTICLE II.

This loan shall be represented by 80,000 bonds of 500 francs gold. These bonds, the text of which is annexed (Annex No. 2) to the present contract, shall be signed in the name of the Chinese Government by the Minister plenipotentiary of China at Paris, duly advised by his Government.

They shall be issued in fractional bonds (coupures) of from 1 to 5 bonds, in such proportion as the Russo-Chinese Bank shall state and shall be made at the expense of the latter.

They shall bear 5% interest a year on the nominal capital, payable in gold. Interest shall run from the day of payment of instalments (du jour des versements) and shall be payable the 1st September and the 1st March of each year.

Matured and paid coupons shall be classed in numeric order, by the Russo-Chinese Bank and at its expense.

(Articles III, IV, V, VI, VII, VIII, IX, X, XI, XII, and XIII are mutatis mutandis, the same as the articles bearing the same numbers in Document No. 58 infra).

ARTICLE XIV.

(Same as Art. XIV in No. 58 with exception of last two phrases of latter which are here omitted).

ARTICLE XV.

(Same as Art. XV in No. 58).

ARTICLE XVI.

(Same as Art. XVI in No. 58 with the words "Bourses of Petersburg and of Paris" instead of "Bourses of the capitals of Europe."

ARTICLE XVII.

Of the whole amount of the present loan, amounting to a nominal capital of 40,000,000 francs, the Russo-Chinese Bank buys outright 22,000,000 francs of nominal capital, or 44,000 bonds of 500 francs, delivery to date from payment to the Agency of the Russo-Chinese Bank at Paris, at the price of 90%, that is to say for the total sum of 19,800,000 francs.

ARTICLE XVIII.

(Substantially the same as Art. XVIII, in No. 58).

ARTICLE XIX.

(Same as Art. XIX in No. 58, with omission of first five and the last paragraphs. Last paragraph reads: "It (the Russo-Chinese Bank) will endeavor to finish the work on the line within a term of three years."

ARTICLE XX.

(Substantially the same as Art. XX in No. 58).

ARTICLE XXI.

The Chinese Government gives the Russo-Chinese Bank an option to December 31, 1905, to purchase the balance of the loan, or 18,000,000 francs, and at the price of 90% of par value.

Said option may be availed of at one or several times, regardless of the amortizations made. Delivery of the bonds taken on the options will be made at the Russo-Chinese Bank in Paris, which will only surrender them under the conditions and terms provided for in the above Article XX.

ARTICLE XXII.

If the Russo-Chinese Bank should avail itself of the right given it to purchase all or a portion of the securities for which it has an option granted it, it shall come to an agreement in each case with the Imperial Chinese Railway Company to determine the section (of line) to be built with the new funds.

ARTICLE XXIII.

Studies for the line, dating from the signing of the present contract, are in the expense of the Imperial Chinese Railway Company. The whole line shall be divided into two principal sections: The first from Cheng-ting Fu to P'ing-t'ing on the left bank of the Weishui River, to the north of P'ing-t'ing Chou, and the second from that point to Tai-yuan Fu.

It is hereafter to be understood that the section to be built with the funds derived from the first option, will be that from Cheng-ting Fu to P'ing-t'ing and that studies for it will begin the first year.

Within two months from the date of ratification of the present contract, the Russo-Chinese Bank will place at the disposal of the Director-General of the Imperial Chinese Railway Company a sum of 1,000,000 francs as an advance on the proceeds of the loan.

This sum, it is understood, can only be applied to studies and construction work on the Shansi railway. The rate of interest on this advance is fixed at 6% annually, regardless of the price of issue.

The first option must be taken up within eleven months from the date of signing the present contract; the proceeds of said option shall be applied in the first place to refunding the above mentioned advance.

ARTICLE XXIV.

The Russo-Chinese Bank reserves the right to make one or more issues, by public subscription or otherwise, of the whole or a part of the bonds bought outright, or forming a part of the option; the expense of such issues to be borne, of course, by the Russo-Chinese Bank.

ARTICLE XXV.

(Substantially the same as Art. XXIV in No. 58).

ARTICLE XXVI.

(Same as Art. XXV in No. 58 except that cases of disagreement between the parties to the contract are to be settled by the Russian Minister at Peking and a member of the Chinese Foreign Office or by a judge of their choice).

ARTICLE XXVII.

(Same as first phrases of first paragraph of Art. XXVI in No. 58).

ARTICLE XXVIII

(Same as Art. XXVI, in No. 58, exclusive of first phrase).

JAPAN

SUMMARY OF SECRET PROTOCOLS TO PEKING TREATY OF DECEMBER 22D, 1905, WITH REFERENCE TO RAILWAYS.

1. The railway between Changchun and Kirin will be constructed by China with capital to be raised by herself. She, however, agrees to borrow from Japan the insufficient amount of capital, which amount being about one-half of the total sum required. The contract concerning the loan shall, in due time, be concluded, following, mutatis mutandis, the loan contract entered into between the board of the Imperial Railways of North China and the Anglo-Chinese Syndicate. The term of the loan shall be twenty-five years, redeemable in yearly installments.

2. The military railway constructed by Japan between Mukden and Hsin-min-tun shall be sold to China at a price to be fairly determined in consultation by Commissioners appointed for the purpose by the two Governments. China engages to reconstruct the line, making it her own railway, and to borrow from a Japanese corporation or corporations one-half of the capital required for the portion of the line east of Liao-ho for a term of eighteen years repayable in yearly installments, and a contract shall be concluded, for the purpose following, mutatis mutandis, the loan contract entered into between the Board of the Imperial Railways of North China and the Anglo-Chinese Syndicate.

All the other military railways in different localities shall be removed with the evacuation of the regions.

3. The Chinese Government engage, for the purpose of protecting the interest of the South Manchurian Railway, not to construct, prior to the recovery by them of the said railway, any main line in the neighborhood of and parallel to that railway, or any branch line which might be prejudicial to the interest of the above-mentioned railway.

THE HSINMINTING-MUKDEN AND KIRIN-KWANGCHENGTZE RAILWAYS.

Convention between Japan and China.

Consuke Hayashi, Envoy Extraordinary and Minister Plenipotentiary of Japan, and Na T'ung, Ch'u Hungchi and Tong Shao-i, Ministers of the Imperial Chinese Board of Foreign Affairs, having been appointed thereto by their respective Governments, have agreed upon the following articles:

1.—The Chinese Government being desirous of purchasing the Hsinminting-Mukden Railway, constructed by Japan, hereby agrees that the purchase price thereof shall be Japanese gold yen 1,660,000, to be paid through the Yokohama Specie Bank at Tientsin.

The status of this railway shall be changed by the Chinese Government to that of the lines built by China herself, and it is agreed that one-half of the capital needed for that part of the line east of the Liao River shall be borrowed from the Southern Manchurian Railway Company.

2.—The Chinese Government, being about to construct a railway line herself from Kirin to Kwangchengtze, agrees to borrow from the aforesaid Company one-half of the capital needed for this work.

3.—The conditions of the loans provided for in Articles 1 and 2, with the exception of the periods within which they are to be repayable, shall be in all respects similar to those of the Loan Contract of the railways inside and outside Shan-hai-kuan. The most important conditions are mentioned below. The regulations for the management of the railway line shall correspond with the methods at present employed by the General Office of the railway lines inside and outside Shan-hai-kuan.

(*a*) The periods within which the loans shall be repaid shall be for that of the Hsinminting-Mukden line east of the Liao River, eighteen years, and for the Kirin-Kwangchengtze line twenty-five years.

No repayment in full of these loans shall be allowed before the expiration of the periods named.

(*b*) The security for the loan from the Southern Manchurian Railway Company for that part of the Hsinmin-Mukden line east of the Liao River shall be the real property of the aforesaid section and its earnings.

The security for the mercantile shares to be issued by the Kirin-Kwangchengtze Railway Administration, as well as for the loan to be made from the Southern Manchurian Railway Company, shall be the real property of the said railway and its earnings.

So long as these loans are not repaid by the Chinese Government, the aforesaid property and earnings of the above-named lines shall not be pledged as security for any other loan.

During the periods of these loans the Chinese Government agrees that the buildings, machinery, rolling-stock and road bed of the section of the Hsinmin-Mukden Railway east of the Liao River, and of the Kirin-Kwangchegtze Railway, shall be kept in good condition, and furthermore that such additions will be made to the rolling-stock from time to time as may be regarded to satisfy the demand of the traffic.

If the Kirin-Kwangchengtze line should hereafter build branch lines or an extension, the construction of such lines shall rest of right with the Chinese Government, but if there should be a lack of capital, application shall be made to the Southern Manchurian Railway Company for an arrangement. Should China, however, appropriate funds herself for the construction of any other railway lines than those mentioned, it shall not concern the Southern Manchurian Railway Company.

(*c*) The loans and the interest thereon are guaranteed by the Chinese Government, and should there be any failure to make payment of interest or re-payment of principal at the proper periods, the Company shall at once notify the Chinese Government, which shall pay over to the Company the amount of the shortage. If the Chinese Government, after such notification by the Company, shall be unable to make good the deficit in the payments of principal or interest, the line in question with its real property shall be handed over to the temporary control of the Company until the shortage is made good, after which it will be returned to the control of the Railway Administration.

If, however, the shortage be for a small amount only, an extension of time shall be granted as an accommodation, but never for more than three months.

(*d*) During the periods of these loans the Engineer in Chief employed shall be a Japanese, and should there be an insufficient supply of Chinese for the various posts in the service of the railways, Japanese may be employed with the Chinese. If at any time it shall become necessary to change the Engineer in Chief, consultation must first be had with the (Southern Manchurian Railway) Company before appointment may be made. There shall also be appointed one Japanese Accountant, who must be thoroughly qualified, and who shall have entire responsibility for the arrangement and oversight of the various accounts of the railways, but in his supervision of receipts and expenditures he must consult and act with the Director-General.

(*e*) The railways mentioned being Chinese Government lines, the latter shall have the right to transport soldiers and subsistence over either line free of charge whenever military affairs or measures of relief shall require.

(*f*) All earnings of the railways in question must be deposited in Japanese banks. As to the terms upon which such deposits shall be made, satisfactory arrangements shall be agreed upon by the parties concerned when the loan contracts are drawn up.

4.—The Chinese Government, immediately after the purchase of the present Hsinmin-Mukden Railway, shall enter into a contract with the Southern Manchurian Railway Company for the loan in connection with that section of the line east of the Liao River, and shall also appoint and direct a Chinese engineer to consult and act with the Japanese engineer in making a survey of the Kirin-Kwangchengtze line to furnish a basis for estimating the amount of the loan needed for the construction of the line, and within six months after the completion (of the survey) shall enter into a contract with the Southern Manchurian Railway Company for the loan.

5.—The lines from Hsinmin to Mukden, and from Kirin to Kwangchengtze, under the management of China, must connect with the Southern Manchurian Railway line. The Tien-tsin-Shan-hai-kuan Railway Administration and the Southern Manchurian Railway Company shall appoint representatives to consult together and draw up the necessary regulations.

6.—The rate at which the loans specified in Articles 1 and 2 shall be issued, shall be determined fairly in accordance with the terms of the most recent loan negotiated by China with any foreign country.

7.—Within one month after the payment of the purchase price of the Hsinmin-Mukden Railway the Chinese Railway Administration shall appoint officers to take control of the sums.

Japanese Calendar, Meiji XLth Year, fourth Month, 15th Day.

Chinese Calendar, Kuanghsu XXXIIIrd Year, Third Moon, 3rd Day (April 15, 1907).

CONVENTION BETWEEN JAPAN AND CHINA REGARDING THE HSIN-MIN MUKDEN AND THE KIRIN-CH'ANGCH'UN RAILWAYS. SIGNED AT PEKING, APRIL 15TH, 1907. (TRANSLATED)

Gonsuke Hayashi, Envoy Extraordinary and Minister Plenipotentiary of Japan and Na-t'ung, Ch'u Hungchi, and Tong Shao-i, Ministers of the Imperial Chinese Board of Foreign Affairs, having been appointed thereto by their respective governments, have agreed upon the following articles:

1. The Chinese Government, being desirous of purchasing the Hsin-min Fu Mukden Railway, constructed by Japan, hereby agrees that the purchase price thereof shall be Japanese Gold Yen 1,660,000, to be paid through the Yokohama Specie Bank at Tientsin.

The status of this railway shall be changed by the Chinese Government to that of the lines built by China herself, and it is agreed that one-half of the capital needed for that part of the line east of the Liao River shall be borrowed from the Southern Manchurian Railway Company.

2. The Chinese Government, being about to construct a railway line herself from Kirin to Ch'ang-ch'un Fu, agrees to borrow from the aforesaid Company one-half of the capital needed for this work.

3 The conditions of the loans provided for in Articles 1 and 2, with the exception of the periods within which they are to be repayable, shall be in all respects similar to those of the loan contracts of the Railways Inside and Outside Shan-hai Kuan. The most important conditions are mentioned below. The Regulations for the management of the railway lines shall correspond with the methods at present employed by the General Office of the Railway Lines Inside and Outside Shan-hai Kuan.

(a) The periods within which the loans shall be repaid shall be for that part of the Hsin-min Mukden Line east of the Liao River 18 years, and for the Kirin-Changchun Line 25 years.

No repayment in full of these loans shall be allowed before the expiration of the periods named.

(b) The security for the loan from the Southern Manchurian Railway Company for that part of the Hsin-min Mukden Line east of the Liao River shall be the real property of the aforesaid section and its earnings.

The security for the mercantile shares to be issued by the Kirin Changchun Railway Administration as well as for the loan to be made from the Southern Manchurian Railway Company shall be the real property of the said Railway and its earnings.

So long as these loans are not repaid by the Chinese Government, the aforesaid property and earnings of the above-named lines shall not be pledged as security for any other loan.

During the periods of these loans the Chinese Government agrees that the buildings, machinery, rolling-stock, and road-bed of the section of the Hsin-min Mukden Railway east of the Liao River, and of the Kirin-Changchun Railway shall be kept in good condition, and furthermore that such additions will be made to the rolling-stock from time to time as may be required to satisfy the demands of the traffic.

If the Kirin-Changchun Line should hereafter build branch lines or an extension, the construction of such lines shall rest of right with the Chinese Government, but, if there should be a lack of capital, application shall be made to the (Southern Manchurian Railway Company for an arrangement. Should China, however, appropriate funds herself for the construction of any other railway lines than those mentioned, it shall not concern the Southern Manchurian Railway Company.

(c) The loans and the interest thereon are guaranteed by the Chinese Government, and should there be any failure to make payment of interest or re-payment of principal at the proper periods, the Company shall at once notify the Chinese Government, which shall pay over to the Company the amount of the shortage. If the Chinese Government, after such notification by the Company, shall be unable to make good the deficit in the payments of principal or interest, the line in question with its real property shall be handed over to the temporary control of the Company until the shortage is made good, after which it shall be returned to the control of the Railway Administration.

If, however, the shortage be for a small amount only, an extension of time shall be

granted as an accommodation, but never for more than three months.

(d) During the periods of these loans the Engineer-in-Chief employed shall be a Japanese and should there be an insufficient supply of Chinese for the various posts in the service of the railways, Japanese may be employed with the Chinese. If at any time it shall become necessary to change the Engineer-in-Chief, consultation must first be had with the (Southern Manchurian Railway) Company before appointment may be made. There shall also be appointed one Japanese accountant, who must be thoroughly qualified, and who shall have entire responsibility for the arrangement and over-sight of the various accounts of the railways, but in his supervision of receipts and expenditures he must consult and act with the Director General.

(e) The railways mentioned being Chinese Government lines, the latter shall have the right to transport soldiers and subsistence over either line free of charge whenever military affairs or measures of relief shall require.

(f) All earnings of the railways in question must be deposited in Japanese banks. As to the terms upon which such deposits shall be made, satisfactory arrangements shall be agreed upon by the parties concerned when the loan contracts are drawn up.

4. The Chinese Government, immediately after the purchase of the present Hsin-min Mukden Railway, shall enter into a contract with the Southern Manchurian Railway Company for the loan in connection with that section of the line east of the Liao River, and shall also appoint and direct a Chinese engineer to consult and act with the Japanese engineer in making a survey of the Kirin-Changchun Line to furnish a basis for estimating the amount of the loan needed for the construction of the line, and within six months after the completion (of the survey) shall enter into a contract with the Southern Manchurian Railway Co. for the loan.

5. The lines from Hsin-min to Mukden and from Kirin to Changchun under the management of China must connect with the Southern Manchurian Railway line. The Tientsin Shanhai Kuan Railway Administration and the Southern Manchurian Railway Company shall appoint representatives to consult together and draw up the necessary regulations.

6. The rate at which the loans specified in Articles 1 and 2 shall be issued shall be determined fairly in accordance with the terms of the most recent loan negotiated by China with any foreign country.

7. Within one month after the payment of the purchase price of the Hsin-min Mukden Railway, the Chinese Railway Administration shall appoint officers to take control of the same.

Japanese Calendar, Meiji XLth Year, Fourth Moon, 15 Day.

Chinese Calendar, Kuanghsu XXXIIIrd Year, Third Moon, 3rd Day (April 15, 1907.)

IMPERIAL ORDINANCE SANCTIONING ORGANIZATION OF SOUTH MANCHURIA RAILWAY JOINT STOCK COMPANY.—ISSUED JUNE 7, 1906.

(Translated from Japanese.)

We hereby sanction the organization of the South Manchuria Railway Joint Stock Company and cause the following Ordinance to be promulgated.

(Sign Manual.)
(Privy Seal.)

June 7, 1906.

(Countersigned) MARQUIS KIMMOCHI SAIONJI,
Minister President of State.

(Countersigned) ISABURO YAMAGATA,
Minister of State for Communications.

IMPERIAL ORDINANCE No. 142, JUNE 7, 1906.

ARTICLE 1. The Government shall cause the organization of the South Manchuria Railway Joint Stock Company for the purpose of engaging in railway traffic in Manchuria.

ART. 2. The shares of the company shall all be registered and may be owned only by the Japanese and Chinese Government or by subjects of Japan and China.

ART. 3. The Japanese Government may offer its Manchurian Railways, and their appurtenances, and its coal-mines in Manchuria, as the capital to be furnished by the Government.

ART. 4. The company may divide the new shares to be raised into several issues to be floated at different times, but the amount of the first issue shall not be less than one-fifth of the whole amount.

ART. 5. The first payment upon the shares need not exceed one-tenth of the value of the shares.

ART. 6. The company shall establish its head-office at Tokio and a branch office at Dalny.

ART. 7. The company shall have a president, a vice-president, four or more directors and from three to five inspectors.

ART. 8. The president shall represent the company and manage its affairs.

The vice-president shall perform the president's duties when the latter is prevented from discharging them, and shall act as president when the latter post is vacant.

The vice-president and directors shall assist the president in his duties and shall take charge of the various departments of the company's business.

The inspectors shall examine the business of the company.

ART. 9. The Government, subject to the Imperial sanction, shall appoint the president and vice-president, whose terms of office shall be five years.

The Government shall appoint the directors from among those shareholders who own fifty or more shares. The term of office shall be four years.

The inspectors shall be elected from among the shareholders at a general meeting of the latter. The term of office shall be three years.

ART. 10. The amount of compensation and allowances of the president, vice-president and directors shall be fixed by the Government.

ART. 11. The president, vice-president and directors of the company shall not engage in any other business or trade, under any name whatsoever, during their terms of office except by special permission of the Government.

ART. 12. The Government shall appoint supervisors for the South Manchuria Railway Joint Stock Company to supervise the business of the company.

The supervisors may at any time examine the company's business and inspect their safes, books, documents and any other articles belonging to the company.

The supervisors, whenever they may deem it necessary, may order the company to report on the various accounts and the condition of the company's business.

The supervisors may attend the general meetings of the shareholders of the company, or any other meetings, and express their opinions, but shall not be entitled to vote.

ART. 13. The Government may issue such orders as may be necessary to superintend the business of the company.

ART. 14. In case the decisions of the company or the conduct of its officers are in violation of laws and regulations or of the object of the company, or are detrimental to the public welfare, or fail to carry out the orders of the Government office under whose jurisdiction the company is, the Government may cancel the said decisions or dismiss the officers concerned.

ART. 15. When the Government deems it necessary, it may apply to the company the provisions of the laws and regulations relating to railways in Japan.

In the case referred to in the preceding paragraph, the Government shall inform the company in advance as to the laws and regulations to be so applied.

ART. 16.* When not otherwise provided for in this Ordinance, the provisions of the Commercial Code and its Supplementary Laws and Regulations shall be applied.

ART. 17. The provisions of Imperial Ordinance No. 366a of 1900 shall not be applied to the company that is to be organized in accordance with this Ordinance.

SUPPLEMENTARY RULES.

ART. 18. The Government shall appoint a commission to transact all business relating to the organization of the South Manchuria Railway Joint Stock Company.

ART. 19. The organizing commission shall draw up the company's articles of association, and after the said articles have been approved by the Government, shall open the subscriptions for the first issue of shares.

ART. 20. When the first issue of the company's shares has been subscribed, the commission shall present to the Government the subscription list and apply for permission to organize the company.

ART. 21. When the permission referred to in the preceding Article has been given, the organizing commission shall, without delay call for the first instalment upon each share.

When the first instalment referred to in the preceding Article has been paid in, the commission shall, without delay, call a general meeting for organization.

ART. 22. At the close of the first general meeting the organizing commission shall turn over its business to the President of the South Manchuria Railway Joint Stock Company.

GOVERNMENT ORDER CONCERNING THE SOUTH MANCHURIAN R. R. JOINT STOCK COMPANY AND ARTICLES OF INCORPORATION. ISSUED AUGUST 1, 1906. (TRANSLATED FROM JAPANESE.)

To Masatake Terauchi, Chairman of the Organizing Commission of the South Manchurian Railway Joint Stock Company, and eighty other members of the Commission:

The following orders are hereby given respecting the several matters relating to the organization of the South Manchurian Railway Joint Stock Company, all matters pertaining to the management of which have been entrusted to the Commission.

August 1, 1906.

ISABURO YAMAGATA,
Minister of Communications.

YOSHIRO SAKATANI, LL.D.,
Minister of Finance.

VISCOUNT TADASU HAYASHI,
Minister for Foreign Affairs.

ARTICLE 1. In accordance with the Additional Agreement of the Japan-China Treaty relating to Manchuria, signed on December 22, 1905, the company shall engage in the traffic of the following railways:

Tairen-Changchun.
Nankuanling-Port Arthur.
Tafangshen-Liushutun.
Tashichiao-Yingkow.
Yentai-Yentai Coal Mine.
Sukiatun-Fushun.
Mukden-Antunghien.

ART. 2. The railways mentioned in the preceding Article shall be changed to the 4 feet 8.5 inch gauge within three (3) years counting from the day on which the company commences its operations.

On the Tairen-Changchun Railway the tracks between Tairen and Sukiatun shall be doubled.

ART. 3. The company shall make the various arrangements necessary for the lodging and meals of the passengers, as well as for the storage of goods at the principal stations on the line.

At the points on the harbors and bays touched by the railways the necessary arrangements shall be made for connecting water and land transportation.

ART. 4. For the convenience and the profit of the railways, the company may engage in the following accessory lines of business:

Mining, especially the operation of the coal mines at Fushun and Yentai.

Water transportation.

Electrical enterprises.

Sale on commission of the principal goods carried by the railways.

Warehousing.

Business relating to the land and buildings on the land attached to the railways.

In addition, any business for which Government permission has been given.

ART. 5. The company shall, subject to the permission of the Government, make the necessary arrangements for engineering works, education, sanitation, etc., within the area of lands used for the railways and the accessory lines of business.

ART. 6. To defray the expenses necessary for the arrangements mentioned in the preceding Article, the company may, subject to the permission of the Government, collect fees of those who live within the area of lands used for the railways and the accessory lines of business, or make any other assessments for necessary expenses.

ART. 7. The total amount of the company's capital stock shall be 200 million yen, of which 100 million yen shall be furnished by the Imperial Government.

ART. 8. The capital to be furnished by the Government mentioned in the preceding Article shall consist of the following properties:—

The existing railways.

All properties belonging to the railways, except those in the leased territory specially designated by the Government.

The coal mines at Fushun and Yentai.

ART. 9. The rolling stock now being used by the Government, and the rails as well as the accessories of the Mukden-Antunghien temporary railway, shall be sold to the company at a reasonable price.

ART. 10. The shares not owned by the Government shall be open to subscription by Japanese and Chinese subjects.

ART. 11. When the dividend of the company for any business year is less than six (6) per cent per annum on the paid amount for the shareholders other than the Government of Japan and China (hereafter to be styled merely "the shareholders"), the Government shall supply the deficiency for a period of fifteen (15) years only, (or for thirty (30) business years if the calendar year be divided into two business years), commencing from the day of the registration of the company's establishment. However, the amount of money to be furnished by the Government to supply the deficiency referred to shall, under no circumstances, exceed six (6) per cent per annum on the capital paid in by the shareholders.

ART. 12. When the dividend of the company for any business year does not exceed six (6) per cent per annum on the capital paid in by the shareholders, the dividend on the shares owned by the Government need not be paid.

The shares owned by the Chinese Government shall be dealt with in a similar way to those owned by the Imperial Government.

ART. 13. The Government shall guarantee the payment of interest on the debentures which the company may issue for the reconstruction of the railways, or for the operation of the accessory business, and on those which the company may issue for consolidating or redeeming these debentures. The Government, shall, if necessary, guarantee the repayment of the principal.

The amount of the face value of the debentures to be guaranteed by the Government shall not exceed the amount remaining when the capital paid in by the shareholders other than the Government is subtracted from the total of the capital subscribed by them.

The debentures mentioned in the first paragraph shall be redeemed within twenty-five (25) years counting from the year of their issuance.

ART. 14. For the debentures issued in accordance with the provisions in the first paragraph of the preceding Article, the Government shall supply the amount corresponding to the interest on the debentures.

When the dividend on the capital paid up by the shareholders exceed six (6) per cent per annum, the surplus shall first be applied to the payment of the interest on the debentures. However, in this case the amount of surplus shall be deducted.

ART. 15. When there is any surplus after paying the interest on the debentures, as mentioned in the preceding Article, out of the profits of the company's business, the said surplus shall be apportioned to the shares owned by the Governments of Japan and China until the rate is equal on the respective amounts paid up by all shareholders.

ART. 16. The money to be supplied by the Government, as provided for in Articles 11 and 14, shall bear interest at six (6) per cent per annum. The interest shall be added annually to the principal and the total shall be the company's indebtedness to the Government.

When the dividend for all the shares exceeds ten (10) per cent per annum, the surplus shall be devoted to the redemption of the company's debt mentioned in the preceding paragraph.

ART. 17. Any surplus of funds raised by means of the debentures mentioned in Article 13 shall be deposited with the Division of Deposits in the Department of Finance.

ART. 18. The company shall determine estimates of the capital to be paid up and the debentures to be floated during each business year, their face value, issuing price, rate of interest, date of issuance et cetera, and shall receive the Government's approval.

ART. 19. The company shall determine the regulations relating to its finances and business, and shall secure the Government's approval.

When the company desires to alter the regulation mentioned in the preceding paragraph and the articles of incorporation, similar steps shall be taken.

ART. 20. The plans of the company's business, the estimate of the cost of operation, the budget of income and expenditures connected with the Company's business, the settlement of the same and the rate of the dividend for each business year shall be submitted to the Government for approval. When the company desires to alter the foregoing items, similar steps shall be taken.

ART. 21. At the designation of the Government the company shall report on the following matters:—

The present conditions of the cost of operation as well as the income and expenditure connected with the company's business.

The actual condition of the company's work in general.

ART. 22. Without the permission of the Government the company shall not dispose of its principal rights and properties; nor give the same for security.

ART. 23. When the Government deems it necessary, it may order the freight charges to be reduced, but only under special conditions.

ART. 24. The Government may, when it deems necessary, order the company to make new works arrangements or modify the existing ones.

ART. 25. At the designation of the Government the company shall be under obligation at any time to place the railways, land and any other articles at the service of the Government.

ART. 26. The Articles and paragraphs relating to the funds to be supplied by the Government and the Government guarantees mentioned in the present order shall be confirmed upon the approval of the Imperial Diet.

THE ARTICLES OF INCORPORATION OF THE SOUTH MANCHURIAN RAILWAY JOINT STOCK COMPANY.

CHAPTER I. GENERAL PROVISIONS.

ARTICLE 1. This company shall be called the South Manchurian Railway Joint Stock Company and is established in accordance with Imperial Ordinance No. 142 of 1906 and in obedience to the Order of the Imperial Japanese Government.

ART. 2. The liability of the shareholders of this company is limited to the value of the shares owned by them.

ART. 3. This company shall establish its head-office at Tokyo and its branch office at Tairen.

ART. 4. The objects of this company are as follows:

1. To engage in the transportation business of the following railways in Manchuria:

Tairen-Chanchung Railway.
Nankuanling-Port Arthur Railway.
Tafangshin-Liushutun Railway.
Tashichiao-Yingkow Railway.
Yentai-Yentai Coal-Mine Railway.
Sukiatun-Fushun Railway.
Mukden-Antunghien Railway.

2. To engage in the following lines of accessory business for the benefit of the railways:

Mining, especially the operation of the coal mines at Fushun and Yentai.

Water transportation.

Electrical enterprises.

Warehousing.

Business relating to the land and buildings on the land attached to the railways.

Any other business for which the permission of the Government may be given.

ART. 5. The capital of this company shall be 200,000,000 yen. However, the amount of the first subscription of shares shall be yen 20,000,000, not including the shares to be owned by the Imperial Japanese Government. The second and subsequent subscriptions shall be opened from time to time, as necessity may require, upon the resolution of a general meeting of the shareholders.

ART. 6. The public notices of this company shall be published in the newspapers in which the public notices of the court of law are published to whose jurisdiction the company is subject in Tokyo, and in the newspapers in which the public notices of the Government General of Kwangtung are published at Tairen.

CHAPTER II. SHARES.

ART. 7. The share certificates of this company shall all be registered, and each share shall be two hundred (200) yen.

ART. 8. The certificates of shares of this company shall be of the following seven denominations:—

One-share certificates.
Five-share certificates.
Ten-share certificates.
Fifty-share certificates.
One hundred-share certificates.
One thousand-share certificates.
Ten thousand-share certificates.

ART. 9. The certificates of shares of this company shall bear the name of the company, the date of registration, the total amount of capital, the amount of each share, the amount paid up, and the number of certificate. They shall bear the signature and seal of the President.

ART. 10. As to the payments upon the shares, twenty (20) yen per share shall be paid in at the first call. For the second and subsequent calls on the shares, the President shall determine the amount to be paid in as well as the time of payment, and notice of the same shall be sent to each shareholder at least sixty (60) days in advance. However, each call on the shares shall not exceed twenty (20) Yen per share.

ART. 11. If a shareholder fails to make payment by the date fixed for payment on the shares, delay interest shall be charged him at the rate of four (4) sen per day per one hundred (100) Yen on the amount due.

ART. 12. If a shareholder fails to make payment within fifteen (15) days from the date fixed for the first payment on the shares, the company may demand that payment be made within thirty days; and if the money is not paid in by that time, the company may notify him that his rights as a shareholder of this company shall be forfeited.

In the case mentioned in the previous paragraph, whose rights are lost, the application money previously paid shall not be refunded.

ART. 13. If at the second and subsequent calls on the shares a shareholder fails to make payment within fifteen (15) days after the

date fixed for payment, the company may notify such shareholder that payment must be made within thirty (30) days, and that, in the case of failure to comply, his rights as a shareholder of this company shall be forfeited.

When, in the case mentioned in the previous paragraph, a shareholder has forfeited his rights as such, the company shall notify each assignor of shares that payment must be made within fifteen (15) days and the assignor who first pays the amount in arrears shall acquire the shares. If no assignor pays, the company shall sell the shares at auction. If the amount realized by the auction is not sufficient to cover the amount in arrears, the previous shareholder shall be required to make good the deficit. If the previous shareholder does not make good within fourteen (14) days, the company shall demand performance of the assignors.

ART. 14. The liability of the assignors mentioned in the preceding Article is extinguished after two years from the time when the assignment was entered in the Register of Shareholders.

ART. 15. If a company or any other legal person, public or private, owns the shares of this company, it shall appoint its representative and have his name entered in the Register of Shareholders of this company. If shares are held by two or more persons in common, they are required to appoint one person to exercise their rights as shareholder. Persons holding shares in common are jointly and severally liable to the company for the payment upon the shares.

ART. 16. When shares are to be assigned, the parties concerned shall make a written statement in accordance with the form prescribed by this company and apply for the alteration of the certificates of shares. However, when a person inherits shares by virtue of succession, bequest or any decision rendered by a court of law, such person is required to attach to the statement referred to a certificate of the census official or other documents as evidence that the company may deem necessary.

The assignment of any share shall not be valid unless the name and domicile of the assignee are entered in the Register of Shareholders and the name of the said assignee is entered on the share certificate in question.

ART. 17. Should any certificate of shares be destroyed, mutilated or lost, the shareholder may apply for a new certificate of shares by presenting to the company a statement giving the facts in the case and signed by two or more persons as guarantors. However, in case of loss, a public notice to that effect shall be given at the expense of the applicant, and the new certificate of shares shall be issued only when no objection is raised within sixty (60) days from the date of the said public notice.

ART. 18. If any shareholder wishes to change the denominations of his certificates of shares, the said certificates shall be presented to the company together with the application.

ART. 19. For the registration of a change of an owner's name on a certificate of shares, the issue of a new certificate of shares or the alteration of the denomination of a certificate of shares, the prescribed fees of the company shall be collected from the applicant.

ART. 20. During a period not exceeding thirty (30) days immediately preceding each ordinary general meeting of shareholders, the company shall suspend the assignment of shares.

CHAPTER III. SHAREHOLDERS.

ART. 21. The shareholders of this company shall be limited to the Governments of Japan and China, and the subjects of Japan and China.

ART. 22. The Imperial Japanese Government shall furnish the following properties as capital, and the company shall deliver to the Government five hundred thousand (500,000) shares, amounting to Yen 100,000,000, which is the value of the said properties:

The existing railways (except the rolling stock now actually in use, as well as the rails and accessories of the Mukden-Antunghien Temporary Railway).

All properties attached to the railways referred to, except such properties within the leased territory as may be designated by the Government.

The coal-mines at Fushun and Yentai.

ART. 23. Each shareholder shall have the right to one vote for each share owned by him.

ART. 24. The shareholders and their legal representatives shall report to the company their domiciles, names and a copy of their legal seals, when they require shares. When any alteration in the above facts has taken place, similar measures shall be taken.

CHAPTER IV. GENERAL MEETING.

ART. 25. An ordinary general meeting shall be called by the President twice every year in the month of June and December. An extraordinary general meeting shall be called by the President when the President or the Inspectors deem it necessary to do so, or when the shareholders owning at least one-tenth or more of the total number of shares have presented a request to that effect, stating the object of the general meeting and the reasons for calling the same. When the shareholders have requested a general meeting to be called, the President shall take steps for calling the same within fourteen (14) days.

ART. 26. The discussion at a general meeting shall be confined to the subjects previously announced.

ART. 27. The date, time and place of a general meeting shall be determined by the President, and a notice to that effect shall be sent out to the shareholders at least thirty (30) days in advance of such meeting.

ART. 28. The President shall act as chairman of a general meeting.

ART. 29. The shareholders may appoint only shareholders of this company as their representatives, and their powers of attorney shall be presented to the company.

ART. 30. The chairman of the general meeting shall be allowed to exercise his right to vote as a shareholder.

ART. 31. Resolutions of a general meeting shall be adopted by a majority vote of the shareholders present. In case of a tie, the chairman shall have the casting vote.

ART. 32. The issuance of company debentures or amendments to the Articles of Incorporation shall be decided by a majority vote, with more than one-half of the total number of shareholders and also of shareholders representing a half or more of the capital stock present.

If, in the case mentioned in the preceding paragraph the necessary quorum is not present, a provisional decision may be made by a majority of the shareholders present. A notification giving the essential details of the said provisional decision shall be sent to each shareholder, and another general meeting shall be called in not less than one month.

At the second general meeting the said provisional decision shall be confirmed or rejected by a majority vote of the shareholders present.

ART. 33. The minutes of a general meeting shall be recorded in the Proceedings of the general meetings, and the same shall bear the signatures and seals of thePresident and chief officers present.

ART. 34. The chairman of the general meeting may adjourn the meeting or change the place of meeting. The discussion at an adjourned meeting shall be confined to the subjects on which no decision was made at the preceding meeting.

CHAPTER V. CHIEF OFFICERS.

ART. 35. The chief offices of this company shall be as follows:

President	1
Vice-President	1
Directors	4 or more
Inspectors	3 to 5

ART. 36. The term of office of the President and Vice-President shall be five years, and they shall be appointed by the Government subject to the Imperial sanction.

The term of office of the Directors shall be four years, and they shall be appointed by the Government from among those who own fifty (50) shares or more.

The term of office of the Inspectors shall be three years and they are to be elected by the shareholders at a general meeting of the shareholders.

ART. 37. The remunerations and allowances of the President, Vice-President and Directors shall be determined by the Government.

The remuneration of the Inspectors shall be determined by a resolution of a general meeting of the shareholders.

ART. 38. The Directors are required, during their term of office, to deposit with the Inspectors fifty (50) shares of the company owned by them. These shares shall not be returned to their owners even on their retirement from office until all affairs transacted during their term of office shall have been approved at a general meeting.

ART. 39. In the event of the office of any Inspector becoming vacant, an extraordinary general meeting of the shareholders shall be called for the purpose of a by-election, and the new Inspector shall hold office during the remainder of the term of office of his predecessor.

However, a by-election may be postponed until the next general meeting of the shareholders, except when the number of Inspectors has decreased to two or less.

ART. 40. The President shall represent the company and have general control of all its affairs.

The Vice-President shall represent the President when he is prevented from discharging his official duties, and shall act as President when that office is left vacant.

The Vice-President and the Directors shall assist the President, and each shall take charge of a part of the business of the company.

The Inspectors shall inspect the affairs of the company.

ART. 41. During their respective terms of office the President, Vice-President and Directors shall not engage in any other occupation or business under any name whatever without the permission of the Government.

ART. 42. The President shall keep at the head-office as well as the branch office copies of the Articles of Incorporation, and of the Record of Resolutions of the general meetings of shareholders He shall also keep at the head-office the Register of Shareholders and the Ledger of Debentures.

ART. 43. The President shall submit the following documents to the Inspectors seven (7) days in advance of the date set for the ordinary general meeting of shareholders:

(1) An inventory of the company's properties.

(2) A balance sheet.

(3) A report on the company's works.

(4) An account of the profits and losses.

(5) Proposals relating to the reserve funds and to the dividends.

ART. 44. The President shall have in readiness at the head-office before the day of an ordinary general meeting of the shareholders the documents mentioned in the preceding Article and the Inspectors' report.

ART. 45. The President shall submit to an ordinary general meeting of the shareholders the documents mentioned in Article 43 and obtain its approval.

The President shall publish the balance sheet when he has obtained the approval mentioned in the preceding paragraph.

ART. 46. The Inspectors are required to examine the documents to be submitted by the President to a general meeting of shareholders and to report their views at the said meeting.

ART. 47. The Inspectors may at any time demand the President to report on the business of the company, and may examine the management of its affairs and the condition of its properties.

CHAPTER VI. SUPERVISORS.

ART. 48. The Supervisors of the South Manchurian Railway Joint Stock Company may at any time inspect the arrangements of the company's work, or examine the safes and books of the company as well as the various documents and articles belonging to it.

The Supervisors may, whenever they deem it necessary, order the company to report on the various business accounts and the condition of the company.

The Supervisors may attend the general meetings of the shareholders or any other meetings and express their opinions, but they are not entitled to vote.

CHAPTER VII. ACCOUNTS.

Art. 49. The account of this company shall be settled by dividing a year into two periods. From April to September of every year shall be the first half year and from October to the following March shall be the second half year.

Art. 50. This company shall set aside as a reserve fund one-twentieth (1-20) or more of the profits, whenever they are apportioned until the reserve fund amounts to one-fourth (¼) of the capital.

Special reserve funds other than that provided for in the preceding paragraph shall be determined by a resolution of a general meeting.

Art. 51. The dividends to the shareholders shall be paid according to the Register of Shareholders as it stands on June 1 and December 1.

Art. 52. When the dividend of the company for any business year is less than six (6) per cent per annum on the paid up capital for the shareholders other than the Governments of Japan and China (hereafter to be styled merely "the shareholders"), the Imperial Japanese Government shall supply the deficiency for a period of fifteen (15) years commencing from the day of the registration of the company's establishment. However, the amount of money to be supplied by the Government shall, under no circumstances, exceed six (6) per cent per annum on the capital paid in by the shareholders.

Art. 53. When the dividend of the company does not exceed six (6) per cent per annum on the capital paid in by the shareholders, the dividend on the shares owned by the Government need not be paid.

The shares owned by the Chinese Government shall be dealt with in a similar way to those owned by the Imperial Japanese Government.

Art. 54. The payment of interest on the debentures which the company may issue for the reconstruction of the railways, or for the operation of the accessory business, and on those which the company may issue for consolidating or redeeming old debentures, shall be guaranteed by the Imperial Japanese Government.

The reimbursement of the principal may also, if necessary, be guaranteed by the Imperial Japanese Government. The amount of the face value of the debentures to be guaranteed by the Imperial Japanese Government shall not exceed the amount remaining when the capital paid in by the shareholders other than the Imperial Japanese Government is subtracted from the total of the capital (Yen 100,000,000) subscribed by them.

The debentures mentioned in the first paragraph of this Article shall be redeemed within twenty-five (25) years.

Art. 55. For the debentures issued in accordance with the provisions of the first paragraph of the preceding Article, the Government shall supply the amount corresponding to the interest on the debentures.

When the dividend on the capital paid up by the shareholders exceeds six (6) per cent per annum, the surplus shall first be applied to the payment of the interest on the debentures. However, in this case the amount of surplus shall be deducted from the money to be supplied by the Government mentioned in the preceding paragraph.

Art. 56. When there is any surplus after paying the interest on the debentures, as mentioned in the preceding Article, out of the profits of the company's business, the said surplus shall be apportioned to the shares owned by the Governments of Japan and China until the rate is equal on the respective amounts paid up by all shareholders.

Art. 57. The money to be supplied by the Imperial Japanese Government, as provided for in Articles 52 and 55, shall bear interest at six (6) per cent per annum. The interest shall be added annually to the principal, and the total shall be the company's indebtedness to the Imperial Japanese Government.

When the dividend for all shares exceeds ten (10) per cent per annum, the surplus shall be devoted to the redemption of the company's debt mentioned in the preceding paragraph.

CHAPTER VIII. EXPENSES FOR ORGANIZING THE COMPANY.

Art. 58. The expenses for organizing the company shall not exceed 50,000 Yen.

Of the amount mentioned in the preceding paragraph that advanced by the Government shall be reimbursed by the company.

SUPPLEMENTARY ARTICLE.

Art. 59. The provisions in Articles 52 to 57 shall be confirmed upon being approved by the Imperial Diet.

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THE FAR EASTERN REVIEW

VOL. VI. MANILA, SHANGHAI AND YOKOHAMA, DECEMBER, 1909. No. 7.

His Excellency, The Honorable W. CAMERON FORBES,
Governor General of the Philippine Islands

ENGINEERING
COMMERCE FINANCE

Hongkong and Shanghai Banking Corporation

DEPOSITORY OF THE GOVERNMENT OF THE PHILIPPINE ISLANDS

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THE FAR EASTERN REVIEW

COMMERCE ❁ ENGINEERING ❁ FINANCE

VOL. VI. MANILA, P. I., SHANGHAI, AND YOKOHAMA, DECEMBER, 1909 No. 7.

TRADE OF THE PHILIPPINE ISLANDS FOR 1909

The Annual Report of the Insular Collector of Customs of the Philippine Islands for the fiscal year ended June 30th, 1909, shows a balance of trade in favor of the islands of over $3,000,000 U. S. C., wiping out the debit balance accumulated during the first five years of American occupation and leaving a credit balance in favor of the islands of $1,074,526 net. The United Kingdom leads in merchandise imported with a value of $5,408,841; the United States, $4,693,831, and the French East Indies $4,275,398. The following comparative table covers the imports from the different countries for the years 1908 and 1909 and indicates the trend of trade:

Country of origin.	1908 Value of merchandise received.	1908 Percentage of total value.	1909 Value of merchandise received.	1909 Percentage of total value.
United Kingdom....	$6,109,586	19.7	$5,408,841	19.5
United States......	5,079,670	16.4	4,693,831	16.9
French East Indies..	5,746,414	18.5	4,275,398	15.4
China............	2,499,169	8.0	2,262,037	8.1
British Australasia..	2,046,039	6.6	2,498,949	9.0
Germany..........	1,933,808	6.2	1,731,073	6.2
Spain............	1,654,480	5.3	1,340,101	4.8
British East Indies..	1,239,084	4.7	745,057	2.7
Japan............	1,111,863	3.5	1,441,063	5.2
France...........	821,348	2.5	947,064	3.4
Switzerland.......	751,524	2.4	580,466	2.0
Hongkong.........	463,970	1.5	356,661	1.3
Belgium..........	342,365	1.1	299,941	1.1
Siam.............	307,507	1.0	168,392	.6
All other countries..	811,918	2.6	1,045,608	3.8
Total.........	$30,918,745	...	$27,794,482	....

The following statement, showing the relative value of the principal classes of merchandise imported during 1908 and 1909, indicates a general decrease of importations with the exception of food stuffs, such as fresh vegetables, meats, dairy products, and flour:

Principal classes of merchandise imported.	1908 Invoice value.	1908 Percentage of total value of imports.	1909 Invoice value.	1909 Percentage of total value of imports.
Cotton goods........	$8,011,834	25.9	$6,944,978	24.9
Rice...............	5,861,256	18.9	4,250,223	15.3
Manufactures of iron and steel..........	2,164,907	7.0	1,933,032	7.0
Provisions, including meat and dairy products..........	1,520,369	4.9	2,176,943	7.8
Cattle, live..........	1,055,236	3.4	755,772	2.7
Flour..............	1,044,570	3.3	1,172,322	4.2
Illuminating oil......	806,112	2.6	614,334	2.2
Manufactures of leather..............	671,962	2.1	494,138	1.7
Manufactures of vegetable fibers........	614,139	2.0	441,679	1.6
Chemicals, drugs, and dyes..............	568,916	1.8	440,207	1.6
Coal...............	567,220	1.8	461,465	1.7

The above indicates a falling off in the importation of rice which forms the bulk of the imports from the French East Indies, a falling off of live stock and an increase of cold stores from Australia.

The Collector has the following to say on the cotton goods imported:

"The value of cotton goods, the principal class of importations, was a little over a million dollars less than that of 1907 or 1908, although somewhat above the annual average, as shown by the following values for the past six years:

1904..........................	$ 4,962.354
1905..........................	6,429.873
1906..........................	6,754.369
1907..........................	8,416.246
1908..........................	8,011.834
1909..........................	6,944.978
Total....................	$41,519.654
Annual average................	$6,919.942

The growing preference for English, Japanese, German, and Swiss cotton textiles, at the expense of the demand for those from other countries, is demonstrated by a comparison of the import values of 1905 and 1909, which show an increase in importations from Great Britain of 22 per cent, Japan 187 per cent, Switzerland 31 per cent, and Germany 37 per cent.

Sources of cotton goods.	1905 Value of imports.	1905 Proportion of total value.	1909 Value of imports.	1909 Proportion of total value.	Increase (+) or decrease (—) 1909, over values for 1905.
		Per cent.		Per cent.	Per cent.
United Kingdom.........	$2,868,359	42	$3,499,452	50	+ 22
Japan.........	230,636	4	662,019	10	+187
United States..	846,354	14	590,635	9	— 30
Spain..........	887,559	14	500,354	7	— 44
Switzerland....	360,838	6	471,885	7	+ 31
Germany......	313,190	5	429,444	6	+ 37
British East Indies.......	348,677	6	220,450	3	-- 37
China.........	268,529	4	218,810	3	— 19
All other countries.........	305,731	5	351,929	5	+ 14
Total......	$6,429,873	100	$6,944,978	100	+ 8

Total exports from the Islands during the fiscal year 1909 aggregated but $31,044,458 in value as against $32,829,816 for the previous year. The reduction in value does not, however, indicate a decrease in production, but is due, as has heretofore been intimated, to the lower price at which hemp shipments were invoiced and to the suspension of sugar shipments on account of pending tariff legislation. Thirty-three per cent of the total export value represents shipments to ports in the United States, which stands at the head of the list of countries of destination of local products. Great Britain, the next in order of relative importance in the export trade, is credited with exports to the value of $5,846,900, and France purchased Philippine products to the value of $4,261,382, Hongkong $2,271,016, Spain $1,989,931, China $1,968,240, and Belgium $1,114,335. These figures, when compared with those of 1908, indicate a decrease in the value of exports shipped to the United States, Great Britain, and Hongkong, due to the causes referred to above, the first two being the principal markets for hemp, and the latter for sugar. Exportations to France, Spain, China, Belgium, and other countries, consisting of miscellaneous products, show a general increase. The following statement shows the distribution of exports, by value, the proportion credited to the principal countries of destination, and the relative increase or decrease during 1909 as compared with corresponding figures for 1908:

Country.	1908 Value of exports.	1908 Proportion of total value.	1909 Value of exports	1909 Proportion of total value.	Rate of increase (+) or decrease (—).
		Per cent.		Per cent.	Per cent.
United States...	$10,332,116	31.5	$10,254,087	33.0	— 0
United Kingdom	8,870,923	27.0	5,846,900	18.8	— 34
France....	3,905,878	11.9	4,261,382	13.7	+ 9
Hongkong.	2,438,438	7.4	2,271,016	7.3	— 7
Spain......	1,719,612	5.2	1,989,931	6.4	+ 15
China.....	1,527,323	4.8	1,968,240	6.4	+ 29
British East Indies...	911,767	2.7	193,021	.6	— 79
Germany..	602,085	1.8	491,986	1.6	— 18
Australia..	528,208	1.6	458,595	1.5	— 13
Belgium...	516,336	1.6	1,114,335	3.6	+115
Japan.....	493,800	1.5	335,253	1.8	— 33
All other countries	983,330	3.0	1,859,712	6.0	+ 89
Total.....	32,829,816	100.0	31,044 458	100.0	— 5

The subjoined table of the relative value of the principal products exported shows hemp in the lead as in previous years, but that a change has occurred in the relative value of copra and sugar exports:

Product.	1908 Values.	1908 Proportion of total value.	1909 Values.	1909 Proportion of total value.	Rate of increase (+) or decrease (—).
		Per cent.		Per cent.	Per cent.
Hemp.....	$17,311,808	52.7	$15,833,577	51.0	— 8
Sugar, raw.	5,664,666	17.2	4,373,338	14.1	—23
Copra.....	5,461,680	16.6	6,657,740	21.5	+22
Leaf tobacco......	1,592,123	4.8	1,674,033	5.4	+ 5
Cigars.....	1,084,078	3.3	1,083,702	3.5	— 0
Cigarettes..	38,345	.1	34,518	.1	— 9
All other exportations....	1,677,116	5.3	1,387,550	4.4	— 2
Total.....	32,829,816	100.0	31,044,458	100.0	— 5

HEMP.—In quantity, exportations of hemp fiber exceeded those of any previous year, having aggregated 149,991 metric tons. Of this amount 79,210 tons represent the largest exportation to the United States in the history of the trade. Despite an increase of 34,000 tons, or nearly 30 per cent, in exportation, the average price obtained was 24 per cent lower than that of 1908, resulting in a decrease from $17,311,808, the value of the 1908 output, to $15,833,577, representing the total hemp exportations of 1909.

COPRA.—The quantity of copra exported during 1909 aggregated 105,564,781 kilos, or 35 per cent more than shipments of the previous year. The value of copra represented 21 per cent of the value of all exports and was exceeded only by the value of hemp shipments.

SUGAR.—Heretofore sugar exportations have held second place in the order of relative value of Philippine products, but shipments during 1909 represent but 14 per cent of the total export value. The aggregate consignment

(Continued on page 352.)

THE FAR EASTERN REVIEW

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THE POLICY OF THE PHILIPPINE ADMINISTRATION

The advancement of the material interests of the Philippine Islands was the keynote of the inaugural address of His Excellency, the Hon. W. Cameron Forbes, Governor-General of the Philippine Islands, delivered on November 24th upon assuming the duties of Chief Executive. His Excellency has always been to the fore in the encouragement of better inter-communication and industrial training, and is a firm believer in the capacity of Filipino labor working under favorable conditions and properly rewarded. He emphasized his position when he said:

"I am opposed to the admission of Chinese labor, nor do I think there is any need for it. The Filipino can do all the necessary work in the Islands. I have entire confidence that the Philippine laborer, properly treated, properly paid, and given the opportunity to use the money which he receives to better his own condition and that of his family, and to purchase those things for which people are usually willing to work, will respond to the opportunities given and demonstrate the fact that he is fully able to supply all the demand for labor in these islands. What is needed here, is capital. Let us turn our attention to a few comparative figures. The total population of Hawaii is 198,000 people, or about one-fortieth part of the population of the Philippine Islands, now approximately eight millions. The total exports from Hawaii in 1907 were $29,000,000. The total exports from the Philippine Islands for the same year were $34,000,000. In other words, Hawaii produced for export approximately thirty-six times as much per capita as did the Philippine Islands.

"This is not because their laborers are superior, as Hawaii has come here in search of laborers and reports that those few whom they have obtained are equal to their Japanese, Korean and other laborers. Porto Rico has 1,000,000 people, or one-eighth the population of the Philippine Islands, and in 1907 its exports were $27,000,000. Porto Rico evidently does not exercise the same degree of economy in the use of its labor as does Hawaii, for it produces only one-sixth as much per capita for export, and still Porto Rico exports six times as much per capita as do the people of the Philippine Islands. Were these islands to produce for sale to other countries as much per capita as Porto Rico the total exports would be $216,000,000. Were they to produce as much per capita as Hawaii the total exports would be $1,179,000,000 a year.

"The explanation of this lies in the fact that Hawaii has an abundance of capital, employs modern methods of cultivation, manufacture and freight handling devices, and suitable and adequate steamship and railroad facilities. In other words, in Hawaii the work of the laborer counts, in the Philippine Islands it does not."

Before leaving the subject of labor, he directed attention to the unequal distribution of the population of the islands with reference to the neglect of rich areas available for development and the overcrowding of other areas less productive. He also proposed in his policy a distribution of this energy so as to effect a more general benefit to all. In this regard he said:

"An analysis of the census reveals certain peculiarities about the distribution of population in the Islands, some regions being densely over-populated and others being practically without inhabitants. Curiously enough it is not always the richest sections that support the most people, and from many districts come complaints of the difficulty of getting an adequate and reliable supply of labor. I think the Government can very properly use its vessels to provide free transportation to families wishing to move to those cultivated regions where laborers are scarce and thus increase the general production of the islands. The Bureau of Labor has made some progress along these lines."

Turning from the subject of labor, His Excellency plunged into the real problem, the pressing need, the element necessary to give Philippine labor the opportunity to assert itself as it had asserted itself in Hawaii. "No, it is not labor that is wanted here, it is capital," he declared. "Many Filipinos," he continued, "have a tendency to oppose the introduction of capital into these islands, either from the United States or from foreign countries, fearing lest somehow it should militate against the realization of their aspirations. In my judgment it will have the opposite effect. It is true that it might be possible in the course of several generations to develop the latent resources of the Philippine Islands without the assistance of outside capital and finally to accumulate enough capital to develop the domestic business from within. But why wait? We had better attract for our use the accumulations of wealth already made in other countries, sure that the advantages which flow from them will far more than offset any possible disadvantage due to the fact that some of the profits will leave the country or that the owners of the capital will endeavor to influence the administration of the islands or their political status. Capital demands a stable government. Capital is not particularly interested in the color or design of the flag. It wants just and equitable laws, sound and uniform policy on the part of the government, just and fair treatment in the courts. The faith of the United States is pledged that all of these benefits shall be permanently assured to the Filipinos. No capitalist needs feel alarmed as to the security of his investment provided it has been made in such a way as to fulfill the conditions imposed by law.

"The United States stands pledged to the establishment and maintenance of a stable government in the Philippine Islands, not for the sake of such capital as may be invested here, only, but for the sake of the welfare of the Philippine people and of the good faith of the United States before the world. The security of foreign capital is merely an incident in the general security of property and other rights to the Filipino, and both are now permanently assured. It would be good general policy for us to offer every reasonable inducement to capital to come, and with that end in view, to liberalize our land and mining laws and lessen the restrictions which have hitherto tended to discourage investors. My policy will be to hold out the hand of welcome to all people desiring to engage in legitimate enterprise."

He pointed out that the passage of the Payne Bill gave the best market in the world to Philippine products, a privilege not enjoyed by any other country or dependency in Eastern Asia "A new lease of life to the Philippine Islands," as His Excellency appropriatedly termed its application to the Archipelago and its people. It would enable the islanders to greatly increase the production of tobacco, sugar, rubber, silk, etc "This will have a vivifying effect," he said, "which will be felt throughout the length and breadth of these islands and awaken new hope in the hearts of the people who have been struggling against almost overwhelming difficulties."

The greater part of His Excellency's address was devoted to his favorite subjects, that of transportation, good roads, irrigation, industrial and agricultural training, public works, permanent construction, better telegraphic and postal communication, and concluded with a very optimistic review of the situation.

His reference to education may be summed up in two striking paragraphs from his address, viz: "I want to see emphasis laid upon the importance of the practical side of industrial and agricultural education," and again—"the amount of education we shall be able to accomplish in ten years will be very much greater if we devote our first money towards increasing the wealth of the people and later use the resulting increase of revenue for extending our educational facilities."

Of irrigation and its benefits he said, "I liken the work of irrigation and improvement of transportation to cutting the strings which close the mouth of a purse of gold. The gold will pour forth and yield enough for all."

In closing His Excellency gave good, sound advice to the inhabitants of the islands. Of the policy and status of the islands we quote this striking paragraph: "To all of you I say, have confidence Turn your attention to those occupations which are fitting to a people in the time of profound peace. There is not on the horizon discernible any cloud which indicates any kind of disturbance in the present status of these islands either from within or from without, by war or insurrection.

"The United States is strong, determined, fixed in her policy and not to be dissuaded or

coerced. The development of the Philippines will proceed along the lines originally set forth, strictly adhered to by each successive administration and by gradual process in the line of declared policy, not by spasms and jerks."

And in the concluding paragraph: "Let us reach out the hand of friendship to our neighbor and endeavor to promote an era of good feeling, of ample confidence, of mutual respect, and of co-operation, that we may all secure the realization of the main object to the attainment of which all our energies of this administration are hereby pledged, namely, the material prosperity of the Philippine Islands."

The declaration of policy has met with general approval in every department of industry and His Excellency has entered, undertaken the duties of Executive with the knowledge that he will be supported generously by every interest, both native, foreign and American, having the future prosperity of the islands and the happiness of the inhabitants at heart.

THE DAIREN CUSTOMS

(*From our own correspondent.*)

Following closely on the recall of Mr. Crane, for alleged indiscret utterances, comes the report that Mr. F. D. Cloud, Acting American Consul-General at Mukden, has been called to Washington to explain certain reports reflecting on the Japanese administration of the Dairen Customs. It is a matter of current gossip throughout Manchuria, that Mr. Cloud forwarded an official report to the State Department at Washington, inviting attention to discrepancies in the Dairen Customs Returns, which strengthened the rumor that large quantities of Japanese imports were finding their way into Manchuria, without the payment of duties. How this report, destined for the American Government, was made public and reached the Japanese authorities is a matter of surmise. It appears, however, that they have protested against the implied charges of smuggling and Mr. Cloud has been called upon to explain. Of course, at this stage of the question, without an exact knowledge of Mr. Cloud's full report, it is impossible to discuss the matter intelligently, but the Dairen Custom Reports for 1908 are at hand for all to read and form their own opinion. A brief study of this report will suffice to explain the situation and throw light on the conclusions drawn by Mr. Cloud. The situation hinges on the treaty by which all imports into the Kuangtung Leased Territory enter duty free, and only when re-exported to Chinese territory is the duty levied. In addition, China agreed that the Imperial Maritime Commissioner of Customs at Dairen and his staff should be Japanese subjects, selected from the regular staff of the I. M. C. All materials and supplies for the use of the South Manchuria Railway lines and branches outside the Leased Territory also are exempt from duty. The Report states that the total value of foreign imports entering the Leased Territory in 1908 amounted to Tls. 18,472,544, of which only Tls. 4,645,879 were re-exported into Chinese territory, leaving a balance of Tls. 13,826,665 for consumption in the sparsely populated Leased Territory. The itemization of imports, given in Mr. Tachibana's report is as follows:—

"The value of goods imported direct from foreign countries during the year under review was Hk. Tls. 17,215,936. Japan had naturally the greatest share in the trade, her contribution being 59 per cent of the total value; America's share was 32 per cent., and the balance of 9 per cent. was taken up in a descending scale by Korea, Great Britain, Germany, and Vladivostock. From want of Customs statistics for the first half of the year 1907 no accurate comparison of trade in the two years 1907 and 1908 can be given; but according to the Japanese official returns, the increase in 1908 over the previous year was put at more than Yen 3,000,000. Of the direct importations, railway materials, chiefly from America—Hk. Tls. 5,797,433—ranks first in point of value; then follow timber of all kinds, from Korea and Japan, Hk. Tls. 1,116,057; cotton piece goods from Japan, in which were included American and English shirtings, Hk. Tls. 1,013,359; rice, mostly from Korea, Hk. Tls. 976,667; metals, Hk. 822,563; machinery and parts, from America, Germany, Great Britain and Japan, Hk. Tls. 872,763; American flour, the greater part of which came through Japan, Hk. Tls. 546,617; sake, Hk. Tls. 544,683; cigarettes, from Japan and Korea, Hk. Tls. 342,784; cement, from Hongkong, Great Britain, and Japan, Hk. Tls. 294,327; coal, from Japan, Hk. Tls. 121,330; sugar, from Hongkong and Japan, Hk. Tls. 114,902. From this it will be seen that the only articles which may be said to have been imported for the use of natives were confined to cotton piece goods, American flour, cigarettes, and sugar, besides a small quantity of kerosene oil, matches, and other sundries, which have not been enumerated here; the remainder, that is, the greater part of the direct foreign imports, was for Japanese enterprises and for the Japanese residing in the Leased Territory and in Manchuria. As to those few items of imports for natives, had not the low quotation of silver prevailed throughout the year, which made merchants hesitate to invest their capital in importing goods into a silver country, a far greater quantity might have found its way into the interior through this port."

In the Statistical Tables concerning the gross and net values of the Maritime Customs trade, on page 25, the net total of foreign imports is given as Tls. 18,472,544. In the special Table given on page 32 concerning foreign goods forwarded to the interior, by railway during 1908, we note that the total value is Tls. 4,645,079.

This report at first glance tends to create a suspicion that a large amount of goods were crossing the border without the payment of duties. It must, however, be remembered—and this point seems to be overlooked—that the one place in the Far East, where they are really doing things is at Dairen. While China and other parts are building air castles, the Japanese are going quietly ahead, and with unlimited funds, are creating a city and port which will soon rise to the first rank in the Orient. Transportation facilities are being increased, wharves extended, new streets constructed, electric tramways, gas works, industrial plants, new car shops, cement works, and fine substantial business edifices have been erected during the year, all calling for large quantities of foreign importations. The increased facilities for the outport of the Fushun Mines have necessitated great expenditures, and a closer examination of the Returns will help to explain away some of the discrepancies, as it is quite possible that Mr. Tachibana has omitted to properly classify his items.

		Taels
Railway materials duty free		5,797,433
Timber of all kinds:—		
Imported	1,116,057	
Re-exported	133,189	982,868
Metals:—		
Imported	822,563	
Re-exported	219,646	602,917
Machinery and parts:—		
Imported	872,763	
Re-exported	None	872,763
Cement:—		
Imported	294,327	
Re-exported	None	294,327
Coal:—		
Imported	121,330	
Re-exported	None	121,330
Oil American:—		
Imported	885,499 (gals.)	
Re-exported	147,457	
Leased Territory Consumption: 738,042 gallons @		132,847
Rice:—		
Imported	976,667	
Re-exported	414,085	562,582
American Flour:—		
Imported	546,617	
Re-exported	152,076	394,541
Sake:—		
Imported	544,683	
Re-exported	218,486.	326,177
Cigarettes:—		
Imported	342,784	
Re-exported	222,170	120,614
Sugar:—		
Imported	114,092	
Re-exported	None	114,092
Consumed in Leased Territory		10,322,481

So the Report explains to the reader the following:—

Net Foreign Imports	Tls.	18,472,544
Total Exports by railway		4,645,079
Value of Imports used on Railway or leased territory	Tls.	13,827,465
Comparison of Returns showing consumption of foreign imports by Railway and Leased Territory		10,322,481
Balance unaccounted for by returns	Tls.	3,504,984

And from this point it is impossible to follow the Report further, owing to the misleading and confusing manner of presenting the returns. Here is an apparent discrepancy which without proper light on the subject leaves room for many surmises. We have seen many examples of purposely misleading statistics, compiled for a public who never bothers to read them, and we commend our readers to the Dairen Custom Returns as a shining example. Imports are classified according to quantities, with values omitted, and the only light on the latter is the brief paragraph in the written report, giving the total values of a few of the leading articles.

On the other hand the table of goods forwarded into the interior by Railway give either quantity and value, and the itemization is impossible to check with the import table. This latter table starts off to tell us that in 1908 4,398,730 gunny bags valued at Tls 315,511 were forwarded into the interior by rail. We turn to the Main Import Table to find what the total Imports were, and the value of the bags employed at Dairen, but we find no mention of any such importations for 1908 or the latter half of 1907, so the inference is that they were previously imported. The item of Building Materials in this list cannot be verified from the main table. Again the list gives Tls. 25,900 of Russian Oil exported, but it is not to be found in the other table.

Japanese importers at Dairen, it is claimed, invariably declare their imports into the Leased Territory at an increased valuation to secure a higher commercial rating. However, when these goods are re-exported and have to pay duty, the tendency is the other way and actual costs or undervaluation is the rule, which practice in itself would explain for a large discrepancy in the Custom Report.

The Taels 3,504,984 balance, which is impossible to check up in the two reports, can undoubtedly be accounted for by the practice of Dairen merchants in overvaluing their imports, and in the items of cotton goods which no one outside the I. M. C. can check. It is incredible that any huge scheme of evading the customs is being practiced knowingly by the Japanese authorities, as such a breach of good faith would place the nation outside the pale of sympathy. Japan has too much at stake in Manchuria to descend to such tactics, and the imputation of such a charge would naturally be resented. However, if Japan is to stand sponsor for everyone of her subjects employed by the Chinese Imperial Customs, and resent deductions based on incomplete and misleading statistics, she will invite criticism, as long as the present system prevails, and a Japanese official administers the Dairen custom house.

Japan cannot be held responsible for the working of China's Foreign Customs which, as long as British Trade predominates in China, must be controlled by a British Inspector General of Customs. And under this régime Customs Returns are so tabulated and arranged that British trade will always predominate. The crux of the situation is at Hongkong, a British free port, where no import statistics are published. All exports from Hongkong are credited to British trade, although a large percentage originate in other countries.

The impossibility of properly checking up Chinese Customs Returns has given rise to many criticisms from various sources.

If Japan can on her own initiative induce Mr. Tachinaba to publish an intelligent report of Returns the coming year, it will set an example which may well be followed all along the line.

TRADE OF THE PHILIPPINES

(Continued from page 349.)

amounted to but 112,379,655 kilos, equivalent to 74 per cent of the quantity credited to 1908, or less than the annual output of any year since 1904. The decrease in exportation is due to the fact that shippers are holding their sugar awaiting a revision of the United States tariff, expecting that the China market price, in the event of free trade with the United States, will necessarily be governed by offers of American buyers. The actual shipments to the United States during the year were some 28,000 tons less than during 1908, and as long as oriental markets depend upon the Philippines for their supply of local grades it is not believed that any considerable quantity will be diverted to a new market in the United States.

LEAF TOBACCO.—Exportations of leaf tobacco during 1909 are represented by 5 per cent of the total export value and amounted in quantity to 10,729,159 kilos, which was but a slight increase over the quantity shipped during the previous year.

CIGARS.—A decrease of over one million cigars is indicated by a comparison of the number exported during 1909 with the exportations for the previous year. The exportations fpr 1909 aggregated 116,278,000 of which 2,696,000 were consigned to the American market.

In addition to the number regularly declared for exportation, 1,505,577 cigars were received on vessels in small lots for consumption thereon, or for the personal use of travelers.

FOREIGN CARRYING TRADE.—The commercial intercourse with other countries at all ports was effected by 764 calls and 750 departures of foreign vessels, representing in the aggregate a movement of 2,802,893 registered tons.

NATIONALITY OF CARRIERS.—British vessels brought imported merchandise to the value of $16,473,516 and were laden with outward cargoes invoiced at $25,357,969. Imports aggregating $4,596,338 and exports to the value of $2,373,560 were carried in Spanish vessels. The distribution of the carrying trade values is shown by the following statement:

Nationality of vessels in which carried.	*Value of cargoes.* Imported.	Exported.
British	$16,473,516	$25,357,969
Spanish	4,596,338	2,372,560
German	3,026,574	1,036,411
Norwegian	1,344,908	218,245
Japanese	943,555	1,205,421
Domestic	656,479	155,033
French	306,965	505,248
American	267,637	193,571
All other	178,510	....
Total	$27,794,482	$31,044,458

The total import and export trade with the United States was represented by a value of $14,947,918, while the merchandise carried by American vessels aggregated but $461,208. On the other hand, British vessels carried cargoes to the value of $41,831,485, or 71 per cent of the total import and export trade, while merchandise shipped to and received from England aggregated but $11,255,741.

FINANCIAL TRANSACTIONS.

Gross receipts.—The gross receipts for the Bureau of Customs at all ports amounted to $8,539,098.87. They were greater than the receipts of any year since 1902 and exceeded those of 1908 by $221,078.48 and show a surplus over the annual average for the period of American occupation of over $1,806,055. Import duties collected aggregated $6,624,093.80, export duties $1,442,666.20, wharfage dues $294,487.18, storage collections $9,226.59, receipts from sales of customs stamps $35,189.85, and miscellaneous collections $133,435.25. While there is a decrease in the import duty collected, larger receipts from export duties, wharfage dues, and miscellaneous sources are responsible for the increase in the gross amount.

The foregoing figures include receipts accruing to the credit of the government of the Moro Province and to the current appropriation of the Bureau of Customs, and moneys subject to refund. The net amount collected for account of the genrral cevenues was $7,652,054.57.

Expenditures.—The total expenses of operation of the Bureau of Customs during the year at all ports aggregated $475,031.31. This amount, due to extraordinary expenses incurred in providing the service with new launches, exceeded that of the previous year by $23,568.18, whereas the actual current expense of maintaining the service was considerably less than that of the previous year.

Of the above amount, $20,902.04 represents the expenses of the service at Moro Province ports, borne by the funds of the Moro government. The total expenditures from the appropriation for the Bureau of Customs amounted to $475,416.46, of which $454,129.27 was charged to expenses of the service, while $21,287.19 represents the value of property and supplies held in suspense in the stock account until issue for actual use.

Cost of Collection.—By computing the cost of collecting the customs receipts upon a basis corresponding with that used by the United States Treasury Department in arriving at the cost of collecting customs revenues at American ports, taking into consideration only those expenditures made for purely customs purposes, it is found to be considerably less than that of any port of the United States where the volume of business corresponds with that of the Philippine ports. The following statement shows the cost of collection upon that basis at each port in the Philippine Islands during the past year:

PORT.	*Cost of collecting each dollar.*
Manila (*a*)	$0.0348
Cebu	.0257
Iloilo	.0382
Balabac	1.4320
Total, Insular Government	.0344
Jolo	.1109
Zamboanga	.0951
Davao	8.1682
Total, Moro Province	.1166
Total, all ports	.036

MANILA HARBOR.—Upon the completion of the Government piers now under construction it will become necessary to arrange for transportation facilities from the piers to the business section of the city before the commercial public can receive the full benefit of a modern system of discharging and handling import cargo. This also applies with equal force to merchandise for export. The most feasible plan for delivering cargo from the piers to the importers' warehouses seems to be by electric or steam trucks of large capacity, or by means of the street railway system. Under present business conditions the tonnage of import cargo alone, which would be discharged over these piers were they in use, would amount to approximately 150,000 tons per annum, or 12,500 tons per month, and this calls for up-to-date transportation facilities. During storms and heavy weather the wave action in the harbor is of sufficient force to seriously interfere with the lading and discharging of cargo, especially along the fairway directly in line with the entrance. For this reason the previous recommendation of this Office that the present gap in the breakwater be closed and that a new channel be dredged around the south end of the breakwater is renewed. If this is not deemed necessary, it is recommended that the present opening in the breakwater be reduced to not to exceed 400 feet in width. It is further recommended that that portion of the harbor between Engineer Island and the entrance be dredged closer to the breakwater in order to provide additional mooring ground for deep-draft vessels. It is also recommended that the harbor be carefully platted for the location of mooring buoys and that buoys be planted by the Government in sufficient number to accommodate all vessels that may enter this port.

PASIG RIVER.—No improvement has been made in the conditions existing in the Pasig River since last year's report, and the same unsatisfactory state of affairs in so far as they relate to the berthing space available for coastwise vessels loading and discharging cargo still exist. In order to provide better facilities for the berthing of coastwise vessels and the handling by them of incoming and outgoing cargo, the following recommendations are made:

1. That the river wall between the Bridge of Spain and the Magallanes Monument be completed at once.

2. That the river wall on the south bank be continued from the Maestranza to Fort Santiago with fill behind the wall.

3. That Government Departments and Bureaus be required to vacate all of the space occupied by them on either bank of the river that it is possible to spare and that they eventually be required to vacate all space occupied by them on the north bank of the river.

4. That a bridge with easy approaches be built across the river from Calle Rosario on the north side, in order to permit the ready transportation of merchandise to and from coastwise vessels berthing on the south side of the river.

CEBU.—There was a steady increase in the value of business transacted at the port of Cebu during the year just ended. From July 1, 1908, to June 30, 1909, customs receipts in all amounted to $1,046,368.64, or $176,554.60 more than the receipts at that port during any previous year since American occupation. This increased revenue was due to larger importations of foreign merchandise, as well as to a marked increase in the shipment of Philippine products. The volume of hemp exported shows the largest increase in the history of the port. During 1908, 27,788 tons of this fiber were exported, and shipments in 1909 amounted to 36,925 tons. The total hemp shipments were invoiced at $3,799,452, while copra valued at $1,707,939, sugar at $145,714, and other products at $25,418 contributed to the total export value of $5,678,523, an increase of $72,116 over the corresponding value of the previous year.

One of the attractive features at the port of Cebu is the recently constructed wharf at which 1,775 vessels were accommodated during the year. It is estimated that the use of the new wharf has resulted in a saving to commercial interests since its completion of not less than $125,000.

In connection with other port works a pumping plant has been installed by means of which the Government furnishes water at a nominal price to all vessels requiring it.

The completion of the port works, the operation of the railway, the opening of the Cebu-Toledo Road, and public highways in the course of construction all have been factors whose favorable influence has been felt.

ILOILO.—Customs receipts at the port of Iloilo during the fiscal year 1909, amounting to $724,748.48, exceeded the receipts of all previous years except those of 1901. The increase was due principally to larger importations, they having been the greatest in the history of the port. The receipts from exports show a falling off which is explained by the fact that exporters are holding some 48,000 tons of sugar in warehouses, pending the final action on the United States tariff bill. There was four times as much agricultural implements and machinery imported at Iloilo during the past fiscal year than during any previous twelve months. It is also worthy of note that the quantity of rice which has long been the chief article of importation was not as great as for 1908. Sugar, sapan wood, and copra are the principal products exported from Iloilo. Sugar shipments during the year amounted to 81,000,000 kilos, of which 23,000,000 kilos were consigned to United States ports and 58,000,000 to purchasers in China and Japan. The entire output of sapan wood is shipped to China where it is used in making dyes. Formerly all of the copra from Iloilo was shipped to Manila in small lots and exported from there, but during the past nearly 500 tons of this product were exported direct.

The marked increased activity of commercial firms, the large importation of steam plows and other agricultural implements, a substantial increase in the area of land under cultivation, an exceptionally large rice crop, and an enormous output of hard wood for building purposes are indicative of an exceptionally prosperous year in all lines of business.

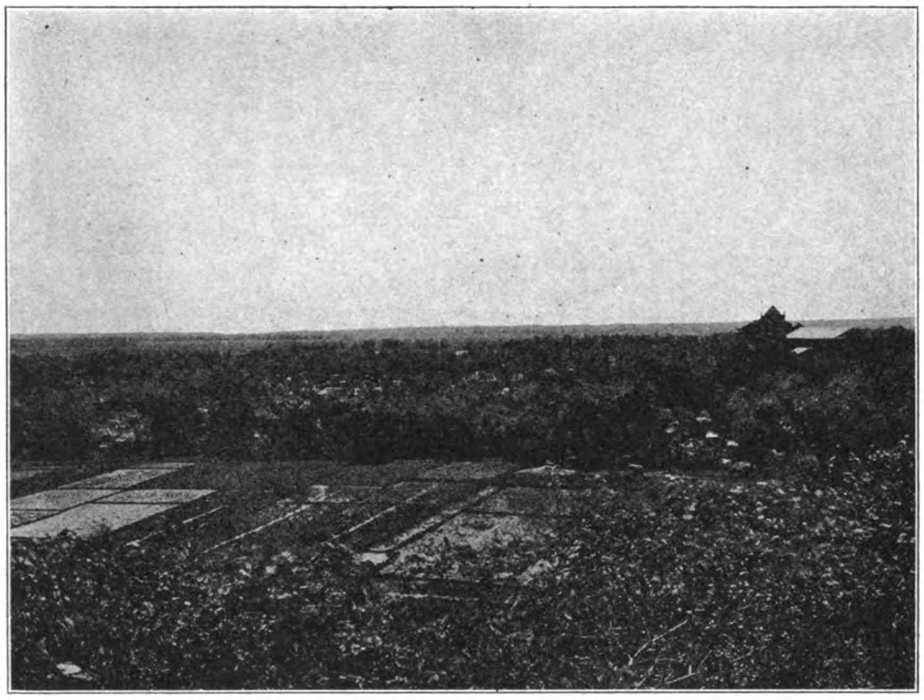
(*a*) Including collections at Aparri (coast district.)

MEDICAL SURVEY OF A PHILIPPINE TOWN

The most important work undertaken by the Philippine Government is the continued fight against disease in all its forms and perhaps the most interesting and unusual was the recent medical survey of the town of Taytay in the province of Rizal under the direction of the Bureau of Science and the Bureau of Health.

The Bureau of Science originally contemplated the undertaking of this survey, but about the time organization was being effected for the expedition, the Bureau of Health desired to make a similar survey for the purpose of investigating hookworm infection, so that the two bureaus co-operated in the work. A complete report of this important survey, the first of its kind so far as we have learned, appears in a recent number of the Philippine Journal of Science. The Journal publishes an introduction by Dr. Richard F. Strong, chief of the Biological Laboratory, Bureau of Science, covering the purpose of the survey and then follows a report on the "Geology and Water Supply of Taytay by Mr. George I. Adams of the Division of Mines," "Bacteriological Analysis of the Water Supply" by Moses M. Clegg of the Biological Laboratory, Bureau of Science, "Chemical Analysis of Taytay Waters" by Dr. George F. Richmond and Dr. V. Q. Gana of the Chemical Laboratory, Bureau of Science, "Principal Foods Utilized by the Natives" by Dr. E. D. Merrill of the Botanical Section of the Biological Laboratory, "The Food of the People of Taytay from a Physiological Standpoint" by Hans Aron of the Physiological Laboratory of the Philippine Medical School, "Mosquitoes and Other Insects" by Dr. Chas. S. Banks of the Entomological Section of the Bureau of Science, "Vital Statistics" by Dr. Paul Clements of the Insular Bureau of Health who also contributes a paper on "General Sanitary Conditions," "Animal Parasites of the Intestine" by Dr. Philip E. Garrison, Assistant Surgeon of the U. S. Navy, detailed as medical zoologist to the Biological Laboratory of the Bureau of Science assisted by Dr. Ricardo Leynes and Dr. Rosendo Llamas; a "Table of Physical Examinations" by Dr. Fred. B. Bowman of the Biological Laboratory, Bureau of Science, assisted by Dr. Leoncio Lopez, Dr. Vicente E. Manapat and Dr. Vicente Rivera, "Examinations of the Blood with Special Reference to Malaria" by Dr. Luis Guerrero and Dr. Victor Sevilla, "Filariasis, Malaria, Tuberculosis, Typhoid Fever, Goitre, Beriberi, Venereal and Skin Diseases" by Dr. Henry J. Nicholas, Lieut. Medical Corps, serving on the U. S. Army Board for the Study of Tropical Diseases and of "Disposal of Excreta" by Dr. Philip E. Garrison. All these interesting papers covering in the minutest detail the work of the different branches of the survey are reviewed and summarized by Dr. Richard P. Strong in an interesting paper which concludes the number.

In his introduction Dr. Strong explains the nature of the survey, the methods employed in carrying it to a successful conclusion, and its value in the campaign against disease and poor sanitation. He writes:

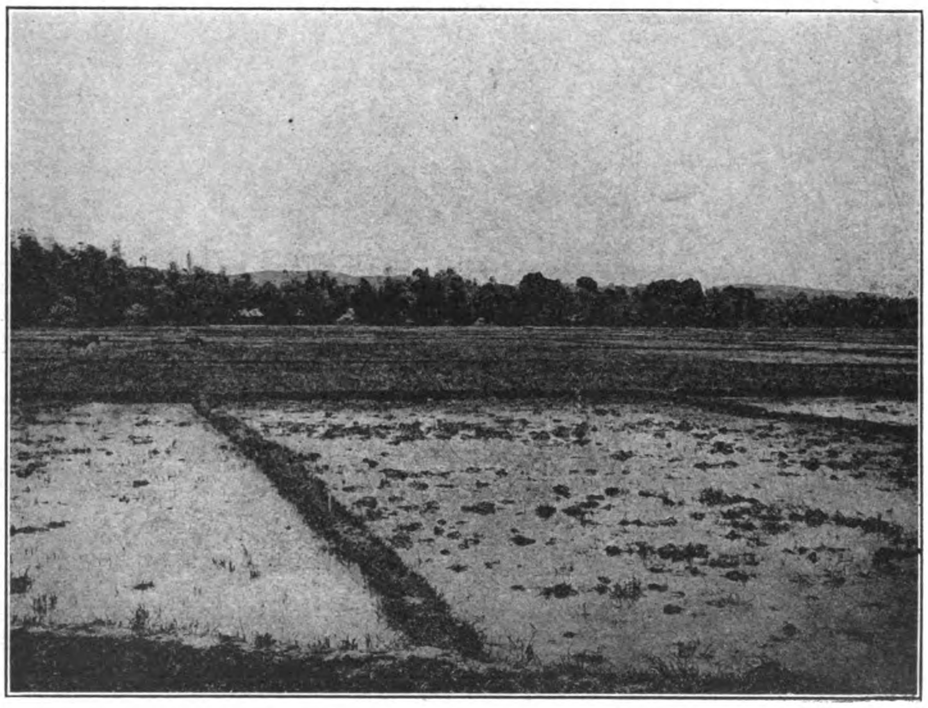


TAYTAY FROM THE EAST

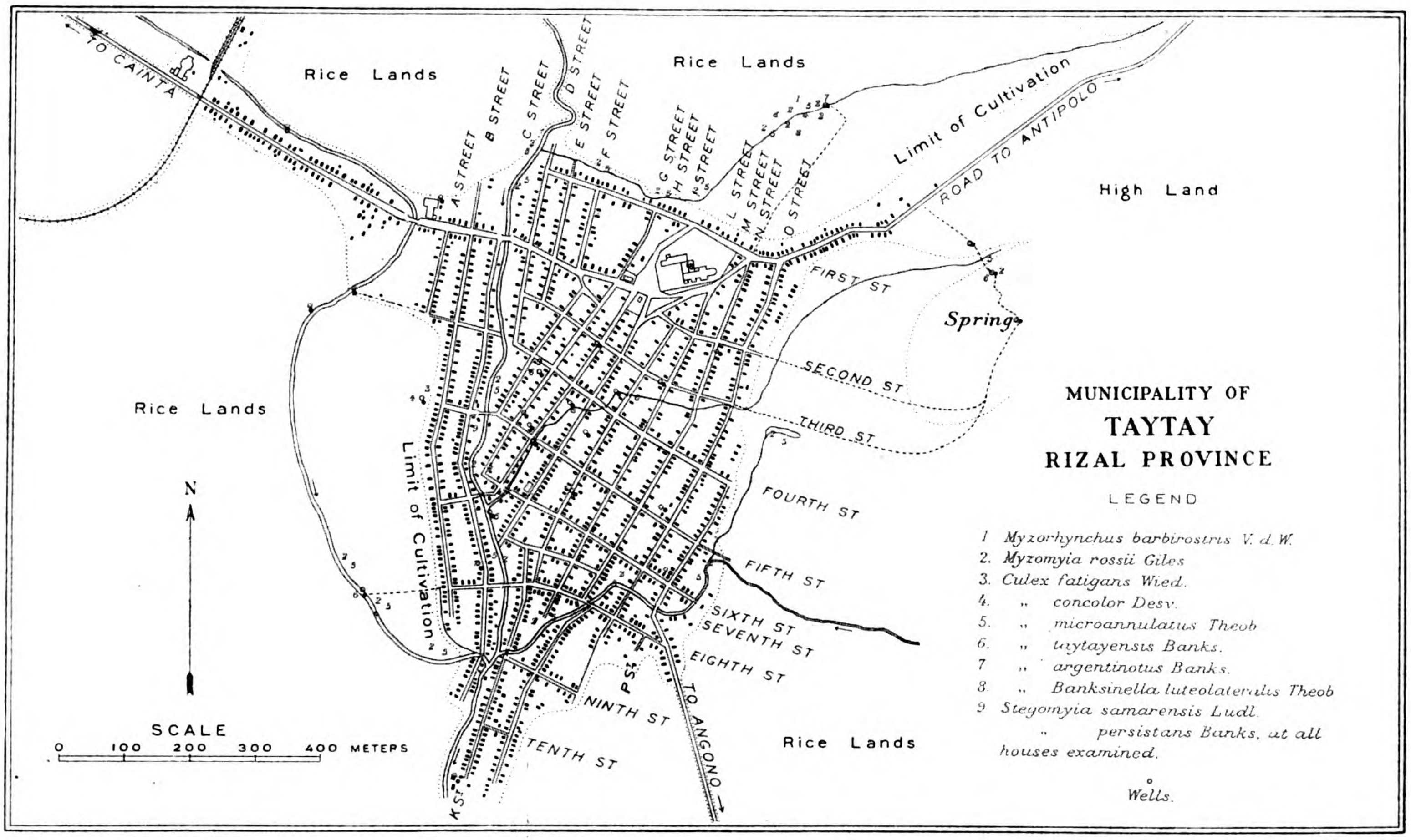
"It has been the policy of the Biological Laboratory for several years past to send men to various provinces outside of Manila, when opportunity presented itself, for the study of disease. During the present year, it was suggested by Doctor Garrison, United States Navy, medical zoologist of the Laboratory, that a group of advanced students from the Philippine Medical School be selected and taken by him during their vacation of several months to some provincial town where a dispensary could be established and a study made of the diseases affecting the inhabitants. It was the intention not only to provide the students with practical training in medical zoological work, but at the same time to examine the inhabitants of the town, particularly with reference to the parasitic diseases with which they were affected. After consultation with the Director of the Bureau of Science and the Chief of the Biological Laboratory, it was decided to organize a more extensive expedition for the purpose of carrying on a complete medical survey of the inhabitants of such a town. A short time after this, the Director of Health requested assistance from the Biological Laboratory in carrying on a campaign in a provincial town for the purpose of examining and treating the natives for infection with intestinal worms, with the special purpose of determining the importance of hookworm infections in relation to the public health. As the extent and the nature of hookworm infections in the Islands was one of the questions which the expedition from the Bureau of Science had already planned to investigate, it was agreed that the Bureau of Health should join in the work of this survey.

"The object of the expedition as finally planned was to make a complete study of a native town in the Philippine Islands under normal conditions. The investigations were performed by members of the staff of the Bureau of Science and of the Philippine Medical School, by three of the students of the school, and by Doctor Clements of the Bureau of Health. The laboratory work extended over a period of three months, March, April and May of the present year.

"The town of Taytay, which is situated on the eastern border of the Mariquina Valley, Province of Rizal, Luzon, was chosen because of its size (it has a population of about 6,000), and because in the past it has suffered severely from smallpox and from several epidemics of



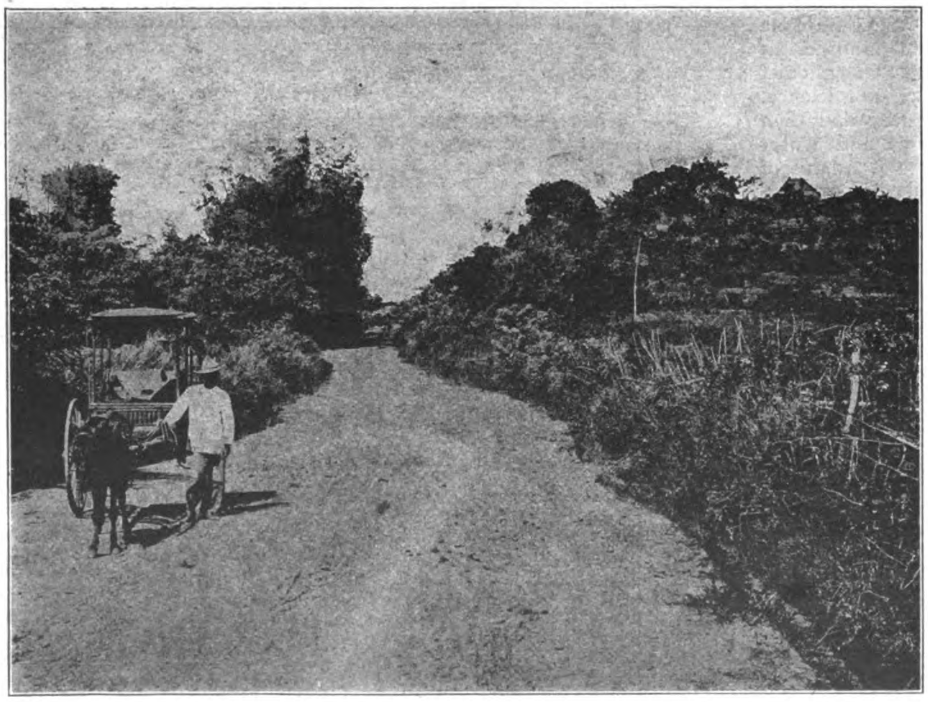
LOOKING TOWARD TAYTAY ACROSS THE RICE PADDIES



TYPE AND DISTRIBUTION OF MOSQUITOES OF TAYTAY. (BANKS)

cholera, and has had a bad reputation from a sanitary standpoint. If a larger town had been chosen, it obviously would have been impracticable to have made as careful a study of the inhabitants as was planned.

"It was the intention during the survey not only to observe how much sickness there was present and the nature of such sickness, but to examine into the character of the population, the conditions under which the people lived, the food which they ate, the water which they drank, and the diseases to which they were liable to be exposed. Following out this idea, a geological study has been made of the contour and formation of the country, the water supply



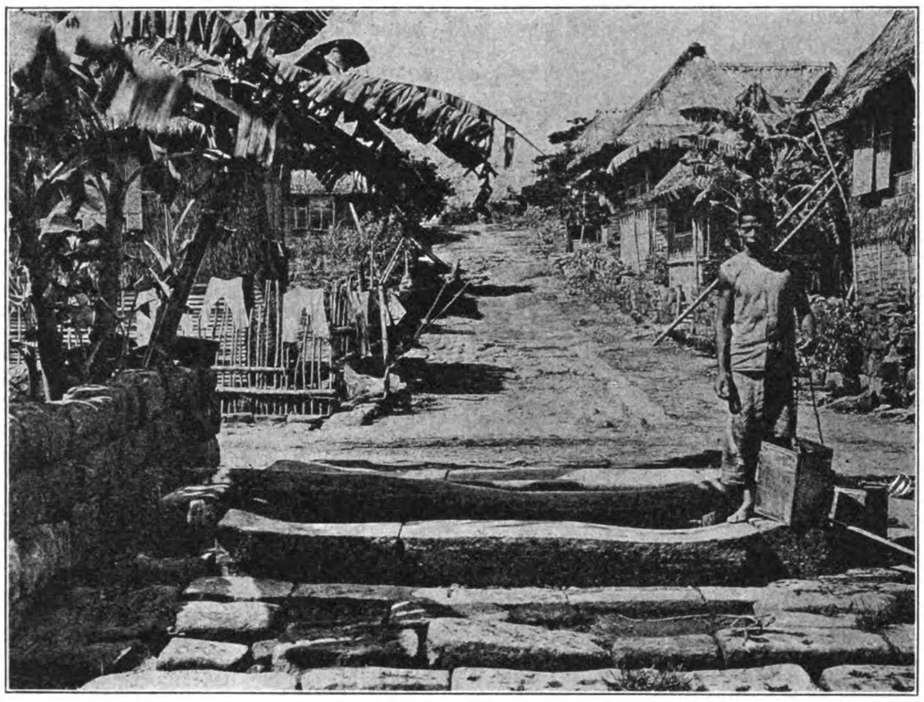
ROAD TO ANTIPOLO IN TUFF FORMATION

has been examined and a chemical and bacteriological study performed of the well waters of the town used for drinking purposes; a botanical examination of the vegetable foodstuffs and a general one of all material offered for sale in the markets have been carried out. The cost and quality of the food and the nutritive value of the diet of the people, from a physiological standpoint, have been studied. An entomological investigation of the mosquitoes and other insects of interest from a medical point of view has been accomplished. As regards the inhabitants, anthropometric measurements were performed, and in the case of those who visited the station, and particularly in those who were found at all sick or abnormal, a medical history was taken and a physical examination performed; the blood, faeces, and sputum were examined microscopically, and, in many cases where the nature of the complaint warranted, serum reactions, differential blood counts, and examinations of the urine were made. The Bureau of Health in addition, through its representative, Doctor Clements, made a study of the general sanitary conditions under which the people lived, and a study of the vital statistics of the town. A dispensary was established at which all of the cases were treated and furnished with medicine free of charge. Various maps of the town were prepared and a census was taken.

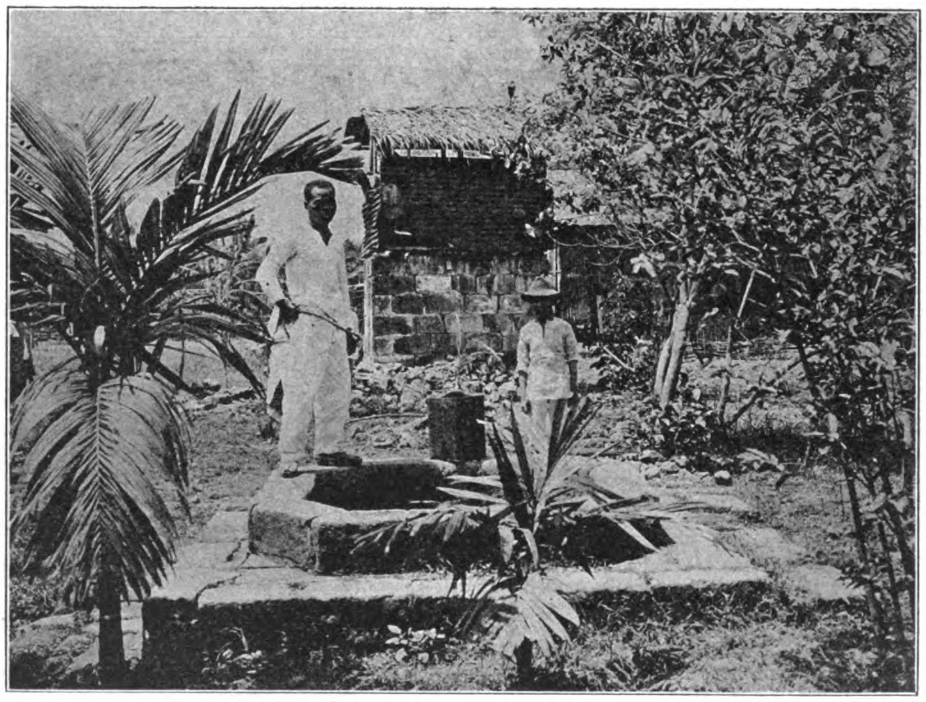
"*Laboratory investigations.*—The helminthological work and the general laboratory investigations of the expedition carried out at Taytay were placed under the direction of Doctor Garrison, and it is largely to his efforts and to those of Doctor Nichols, of the United States Army and of Doctor Clements, of the Bureau of Health, that the success of this portion of the work is due. A suitable nipa house near the center of the town was rented, and in this was established a station comprising the laboratory, a clinic and a dispensary. An adjoining house was rented also, in which the members comprising the expedition lived. The people throughout the town were invited to visit this station, first, as a place of curiosity for those who were well, where they could see laboratory apparatus, observe their own blood under the microscope, etc.; and second, as a place which offered to those who were sick an opportunity of being cured and of obtaining medicine free of charge. The plan of work at the clinic and laboratory was outlined as follows: To each individual who presented himself a ticket bearing his name was given; and a number, together with the name, sex, age, occupation and residence of the individual, was placed upon a clinical record card. A separate alphabetical index of names was kept in order to avoid error if a ticket were lost. Each person was then supplied with a test tube or bottle in which he was instructed to bring a specimen of his faeces on the following day. As many as could be examined were then passed to another room where they were subjected to a physical examination. A haemoglobin estimate and an examination for malarial or other parasites was then made of the blood. The results of the examinations were then entered on the clinical card. In addition, separate records were kept of all laboratory examinations. If an individual proved of any particular interest from a medical standpoint, he was detained for further examination; otherwise he was discharged, or, if sick, was sent with his clinical card to the dispensary where his ailment was prescribed for and where he was given special instructions regarding treatment or regarding his return to the clinic and the bringing of specimens of faeces, sputum, or urine. In addition to the treatment of patients at this daily clinic, those who were unable to attend were visited in their homes, all the records of these cases being kept likewise. The time from 4 o'clock until dark was devoted usually by the members of the expedition to the mapping of the town and to making a census of the population. In the course of this work, the entire town was covered by a house-to-house inspection, the name, sex, and age of each inhabitant, together with the surrounding conditions under which he lived, being entered upon a separate card for each house. The members of the expedition were able by means of this census to locate cases of serious or interesting diseases which otherwise might not have come to their attention. In some cases a person afflicted with a disease was able to direct the members of the expedition to other persons similarly afflicted, thus assisting in the discovery of all cases of disease in the town. This was particularly true in regard to goitre and yaws, diseases which the people could recognize easily.

"The results of these investigations have all been collected and published together in the present number of the JOURNAL, with the exception of those carried on by Doctor Bean on racial anatomy at Taytay; these studies are not yet entirely completed and will appear later in Section A, General Science, Vol. IV, No. 5, of the JOURNAL, during the present year.

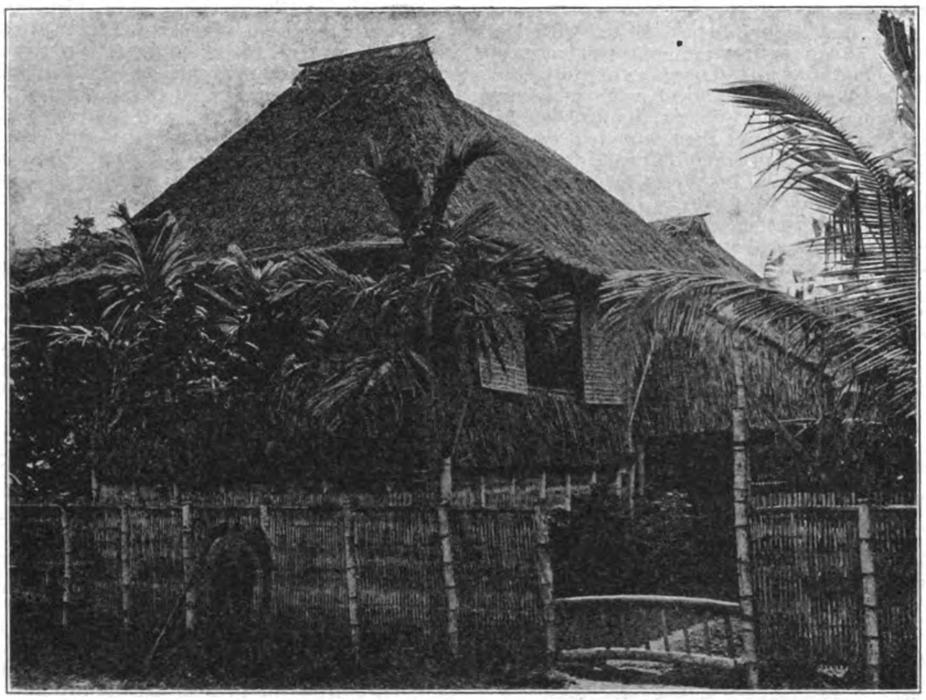
"While the various divisions of the work were systematically distributed among the members of the expedition, each giving his special attention to the work to which he was assigned, nevertheless considerable of the work was carried on by all the members of the expedition together; as, for example, the mapping of the town and the preparation of the census. Hence, while the individual reports have been written by those members of the expedition who performed the greatest relative amount of work upon the subject, nevertheless it should



BIG WELL NEAR MUNICIPAL BUILDING



OUTHOUSE IN PROXIMITY TO WELL



LABORATORY AND DISPENSARY BUILDING

be understood that much of the work of the expedition was carried out by all of its resident members working together.

"Special bacteriological examinations, such as of the waters of the town and of faeces for cholera vibrios, were performed at the Biological Laboratory in Manila where these specimens were sent daily by messenger.

"In the individual reports, it must be considered that in determining the incidence of certain diseases the members of the expedition relied solely upon the attendance of the individuals at the clinic; while in determining the incidence of the others, practically the entire population of the town was canvassed carefully. Therefore, the results obtained in relation to each disease must be carefully interpreted if they are to be used as an expression of the prevalence of such disease in the general population; obviously the same basis can not be used in computing the percentages for all diseases among the Filipino population throughout the Island of Luzon.

"In the preparation of the reports upon the laboratory work performed at Taytay and the study of disease there, the subjects were considered and discussed jointly by Doctors Garrison, Nichols and Clements, and have been prepared for publication by these gentlemen, Doctor Teague and the writer.

"This expedition is probably one of the most extensive of its kind that has ever been carried out and is certainly the most extensive medical survey that has ever been undertaken in the Philippine Islands. Its accomplishment was largely made possible through the efforts of Doctor Freer, Director of the Bureau, who, before his departure on his vacation early in April, did much to organize, arouse interest in and to stimulate the work of the expedition."

The value of this survey may be gathered from the summary of Dr. Strong and the conclusions arrived at for the amelioration of the undesirable conditions found. While Taytay may not be said to involve conditions in every respect similar to all towns of its size in Luzon, yet in a great measure they may be relied upon to represent generally the status of the average Filipino community and the conditions under which the natives live. Some idea may be gathered in the absence of space to cover the individual reports, from the summary and conclusion of Dr. Strong which concludes the publication in the *Journal of Science*. Some of the most important extracts follow:

"In considering these reports one should bear in mind the original purpose of the expedition, which was to obtain exact and comprehensive knowledge of conditions as they actually existed in a typical Filipino town. The primary idea of the survey was not to develop any special line of research, although it was hoped that new conditions might be discovered. The difficulties in carrying out the investigations were not as great in some respects as had been anticipated; the people throughout the town took considerable interest in the work, and there was comparatively little difficulty encountered in obtaining their consent to submit to a physical examination or to one of their blood, or in securing specimens of sputum, faeces or urine when such were desired.

"From a consideration of the data at hand, it is believed that a satisfactory knowledge has been gained of the diseases prevalent in the community of Taytay and of the conditions under which the people live there.

"As might have been expected, the inhabitants, in building their homes in the lowlands, considered chiefly the conveniences of location in pursuing the agricultural and fishing industries, thus sacrificing the advantages of a healthy location on the hill-lands at the east of the town.

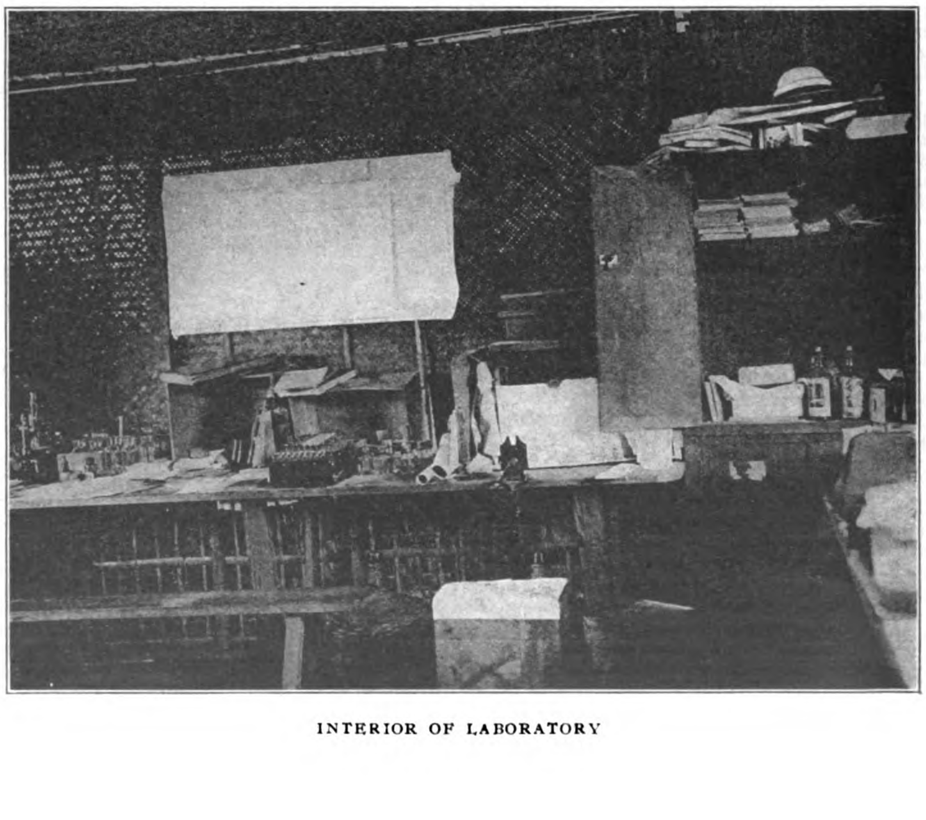
"The town of Taytay, because of its proximity to the cities of Manila, Pasig and Cainta, where Spanish, Chinese and Indians are present in great numbers, probably contains a more mixed population than the average Filipino village situated along the littoral highlands. It is near Lake Bay and as it also lies at the foot of hills and mountains, therefore, both the fisher-folk and the hill people are found in the town.

"From the examination of about 500 men, women and children among the visitors at the dispensary who were carefully measured, the physical types and the ear types associated with them which have been previously described by Doctor Bean, were established and the diseases common to some of the types were mentioned. From these studies no absolute conclusions would be justified, but the inference is strong that the blend of European and Filipino which most resembles the Iberian, or Mediterranean race of Sergi, is more susceptible to all diseases—and more especially to tuberculosis—than the primitive type. This may indicate that the European-Filipino type, or its resulting offspring, the Filipino-Iberian type, is less resistant to disease in the tropics than is the aboriginal type on its own soil and in its natural environment.

"The principal occupations of the people are agriculture and fishing. At present their life is not modified to any degree by contact with foreign influence. A slight gain in the population of the town has apparently taken place since 1903, at which time the census showed a population of 5,840 whereas the present census shows one of 6,094.

"The water supply is largely from wells which are generally exposed to surface contamination and to contamination from the hands and feet of those drawing water. A bacteriological examination of the water from these wells, thirteen in number, showed in six of them, over 5,000 microörganisms per cubic centimeter. *Bacillus coli communis* was isolated from seven, and *Bacillus pyocyaneus* from three. Hence the majority have been contaminated by sewage. The chemical examination of these waters showed that in the majority the amount of chlorine and of albuminoid ammonia and nitrites was so high as to also condemn them from a chemical sanitary standpoint. *Amoebae* were found in all but one and *flagellata* in all.

"The natives of the town, of course, drink the water unboiled. From the character of the drink-water supply in the town and its constant exposure to surface contamination and to contamination from the hands and feet of those



INTERIOR OF LABORATORY

drawing the water, it is evident that the population, under the present conditions, must be exposed from time to time to epidemics of cholera and of dysentery.

"Of the protozoal forms of dysentery now recognized, amoebic, malarial and balantidial dysentery are all found and are endemic in the Philippine Islands. With the exception of the amoebic and catarrhal dysenteries, none were encountered in Taytay.

"The cholera spirillum which was sought for carefully was not found in the water from any of the wells, although several species of vibrios were isolated from some of them. Had one of the wells been infected with the cholera spirillum, there would almost certainly have been an epidemic of this disease in the town, whereas during the three months but nine cases of cholera occurred.

"Only four cases of typhoid fever occurred during the three months that the examinations were carried on. There can be no serious ground for the idea that typhoid fever is a comparatively rare disease in the Philippines and that those cases which are found in the Islands have been imported.

"In regard to the improvement of the drinking water supply of Taytay, it is fortunate that the geological strata is favorable to drilling; Doctor Adams has reported it is possible that in the southwestern part of the town sufficient hydrostatic head might be encountered to produce an artesian flow.

"The food of the inhabitants of Taytay was found to be of limited variety and almost entirely of local production; some dried fish is imported from Manila. The staple diet consists largely of fish and rice with some fruits and vegetables, and occasionally carabao milk, butter and eggs.

"The cost of the food consumed by the inhabitants usually amounted to between 9 and 16 centavos daily, with an average of 12½ centavos per person. However, it is not believed that the daily ration consumed by these people is the most desirable one for them or that the most beneficial food can be purchased by them for this amount.

"In relation to the entomological study of the town, two new species of mosquitoes were met with, both belonging to the genus *Culex*. Mosquitoes of the subfamily *anophelinae* (*Myzomyia rossii* Giles) were found breeding, particularly in the districts of the town along the banks of streams and in all bodies of stagnant water around the wells; they were most numerous along the stream running through the town. It is interesting to note that the distribution of the *anophelinae*, as found by the entomologist, corresponded very well with the districts in which the cases of malaria were discovered by the clinicians. It is not surprising that only about 2 or 3 per cent of those examined in Taytay were found to be harboring the malarial parasite, since the investigations were carried on in the midst of the dry season, which is the time of year in which malaria in Taytay is at a minimum As far as the conditions for the propagation of malaria are concerned, Taytay is not very unfavorably situated. Mosquito nets were used practically not at all in the town, only about one-half dozen having been seen by members of the expedition.

"*Infections with animal parasites.*—An examination of the faeces of 1,000 persons in the town showed that 95 per cent of the people were infected with some form of intestinal worm. The results of these examinations are in accord with those which have been carried out by Doctor Garrison and his assistants in the city of Manila, which have showed that the Filipinos are almost universally infected with these parasites.

"An attempt to discover any localization in groups of the cases infected with *Ascaris*, hookworms, *Trichuris*, *Strongyloides*, *Oxyuris* or *Amoeba* in any part of the town of Taytay, in proximity to certain wells or streams, by families or occupations, gave negative results.

"Only 11.6 per cent of those examined were found to harbor hookworms, and none of them presented any symptoms of disease which could be attributed definitely to this parasite. Eighty-two and nine-tenths per cent were found to harbor *Ascaris*, and about 77 per cent *Trichuris*.

"About 1 per cent of the inhabitants were found to be infected with tuberculosis; no focus of this disease was discovered, the cases being distributed evenly throughout the town. Pulmonary tuberculosis was the common form. About 1 per cent of the inhabitants were found to be suffering from goitre. It is interesting to note the very small amount of venereal disease which was observed in the town. On the other hand, yaws was found to be fairly prevalent, 1 per cent of the children being infected.

"From this brief summary of the studies performed at Taytay, it may be seen that while the conditions in this town are generally unsanitary, the death rate varying in different years from 27.91 per 1,000 to 45.42 per 1,000, they at times may become most unsanitary. Under the present conditions, epidemic diseases such as cholera, typhoid and bacillary dysentery are likely to occur from time to time. The history of the town shows this to be the case in regard to cholera. The great epidemic of 1882 is said to have gained a foothold first in Taytay. In 1902, and again in 1905, cholera was also epidemic there. If the introduction of cholera at Taytay during the present year had taken place in the rainy season instead of in the midst of the dry one, another epidemic of this disease would likely have occurred.

"In regard to smallpox, general vaccination against this malady was carried out in 1905 and in March 1909. It is interesting to note in this connection that smallpox was present in 1908 and 1 per cent of the inhabitants died with it. The entire mortality of the year was 45.42 per 1,000. In 1907, when there was no smallpox, the death rate was 27.91 per 1,000. Practically all of the deaths from smallpox were among children under 9 years of age; indeed, nearly 90 per cent were among children under 5 years of age; that is, the majority of the children who died from the disease were born after the general vaccination performed in 1905. Therefore, there should be no difficulty in controlling smallpox by means of vaccination.

"There can be no question of the advisability of protecting the inhabitants of Taytay against cholera and perhaps against typhoid fever, also by vaccination. All the evidence that we have from the provinces relative to cholera has shown the practicability and the efficiency of vaccination against this disease as a method of protection.

"It is believed that if a large epidemic were imminent the sanitary authorities would not hesitate to employ vaccination against cholera. It would seem, however, that in the case of towns with sanitary conditions similar to those which exist in Taytay, general vaccination against cholera should be performed in order to protect the inhabitants from a general epidemic of this disease which otherwise might occur were the disease introduced at a favorable season. It is true that the sanitary conditions in Taytay can be improved greatly if artesian water can be supplied to the people, but so long as they pursue their present habits in regard to sanitation —particularly those of eating with their fingers from a common dish, drinking water from a jar which is constantly soiled by the hands, and bathing, washing, and even drinking from the same stream; and so long as faeces are exposed to flies and other insects in the vicinity of the dwelling houses—so long will they be liable to epidemics of cholera.

"In conclusion, it would appear that the sanitary measures to be particularly recommended in Taytay at the present time are supplying the town with an artesian water supply, vaccination against cholera and perhaps against typhoid fever, and an improvement in the present method of disposing of the faeces so that the human excrement is not exposed to flies and other insects and not allowed to lie in close proximity to wells or to houses where food is partaken of. During certain periods of the year something might be done in the way of distributing quinine among those suffering from fever. More extensive prophylaxis against malaria in Taytay is not recommended at the present time."

The accompanying illustrations are reproduced through the courtesy of the Director of the Bureau of Science.

THE LARGEST CREEK IN AUGUST AFTER THE RAINS

GENERAL GEOLOGIC RELATIONS AT TAYTAY

PRELIMINARY REPORT ON IRRIGATION IN JAVA*

General information.—Java is located between parallels 5° 50′ S. and 8° 50′ S., and from longitude 105° 10′ E. to 114° 14′ E. Its length is approximately 1,000 kilometers, and its average width about 130 kilometers. It varies in width from 90 kilometers at the narrow central portion to 200 kilometers at the wide, east-central portion. Its area is about 125,650 square kilometers. This area is about one-fifth larger than that of Luzon, and slightly less than that of the State of New York. Its population averages nearly 240 per square kilometer (600 per square mile). Its axial mountain range lies slightly closer to the southern coast, and is sharply broken by various mountain peaks and volcanoes, a few of which exceed a height of 3,000 meters above the sea. Several extensive fertile plains, having elevations varying from 50 meters to 750 meters, are located within the general area of the mountain range. Many alluvial plains and deltas exist along the exceptionally regular shore line, which affords few good harbors.

The river systems in general comprise a series of nonnavigable small streams, extending from the elevation axis to the sea. The principal exceptions are the Tji Taroem in the western part, and the Tji Manoek in the west-central portion, which have their origin relatively close to the southern shore, and flow northerly into the Java sea. In the eastern part are the Kali Solo and Kali Brantas, the two largest river systems of the Island. These four rivers are navigable for launches and other small draft vessels for distances varying from about 40 to 175 kilometers.

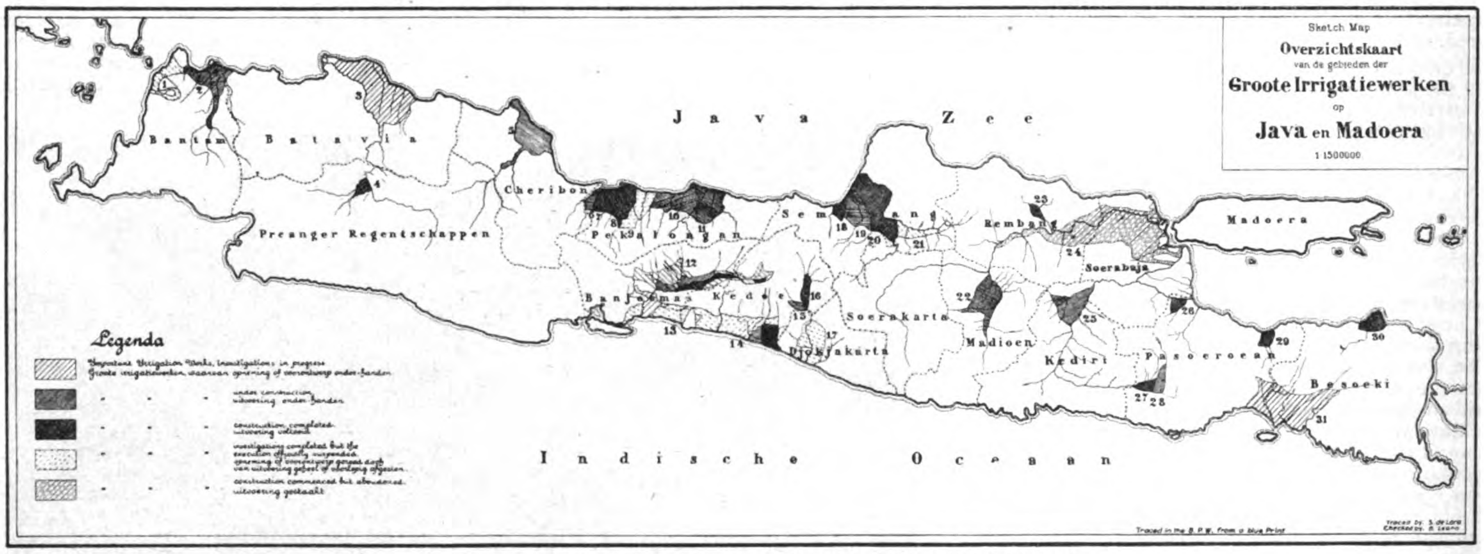
The seasons are characterized as wet and dry. The former occurs during the prevalence of the westerly monsoons, practically throughout the island; the wet season of east Java being slightly later than that of west Java. Thunderstorms prevail during the wet season. The wind pressure is moderate, rarely exceeding 25 kilograms per square meter, which corresponds to a wind of about 50 kilometers per hour. Damage by wind—to vegetation and to structures—is, therefore, exceptionally slight, and harbors of refuge for shipping are not required. The temperature is unusually uniform, the daily temperature ranging from 23° C., to 29° C; and extreme variation from 21° C., to 32° C., is rare.

The rainfall of Java is discussed in a report of the director of the Royal Magnetic and Meteorological Observatory at Batavia, issued in March, 1908, for the years 1879 to 1907. Records of 700 stations are available. The rainfall resembles that of the Philippine Islands in its irregularity as a result of the proximity of mountains, in the length of the wet and dry seasons, and in the intensity of downpour during the rainy season. The lower areas have an approximate average annual precipitation of from 1,500 to 2,000 millimeters, while the mountain stations give records of from 3,000 millimeters to 4,500 millimeters. The maximum annual record is 9,101 millimeters at the station Sumber Redjo, for the year 1900, elevation 1,200 meters. The months of July, August, and September, are the driest.

Compulsory labor is designated as "Heerendienst," and "Desadienst." The former relates to works of the Government, and is limited to-day to furnishing labor and material for road construction and maintenance. The amount of service required up to 1867 resulted in a condition of semi-slavery very similar to the enforced labor required under Spanish laws up to the early eighties. In 1882 this service was further reduced, and, in compensation therefor, a poll tax of 1 to 1.50 florins (₱0.80 to ₱1.20) was levied, which remains in force to-day. In 1906 this tax, for Madoera and Java, aggregated 3,576,138.50 florins (₱2,860,910.80). It is expected gradually to reduce this service on account of the taxes.

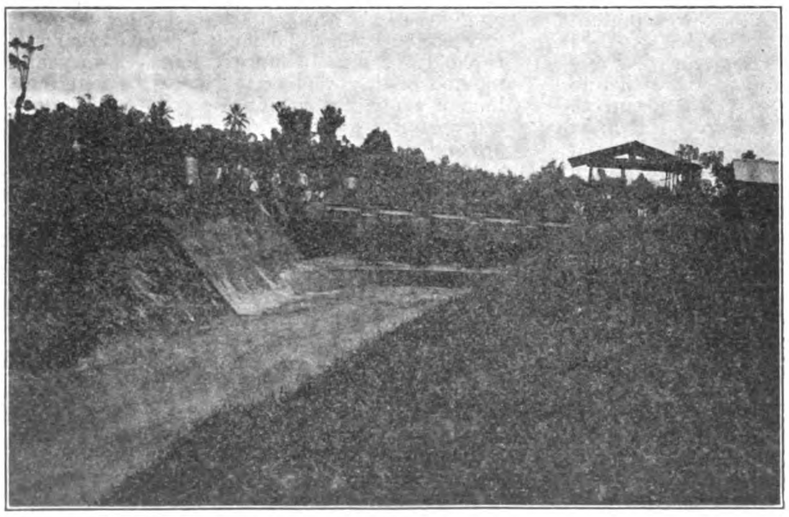
When irrigation construction is in progress and free or paid labor is not procurable, on account of an unwillingness to work, the regulations regarding compulsory labor may be enforced, and the execution of works of public value completed, in which case an equitable wage is paid. Compulsory labor may be secured over an area within about 12 kilometers of the work in progress; its value is regarded as about two-thirds of the value of paid labor.

"Desadienst" applies to the compulsory service required in a village or community, and is not fixed in amount. It is required, enforced, and supervised by the head of the village, and applies, without cost to the govern-

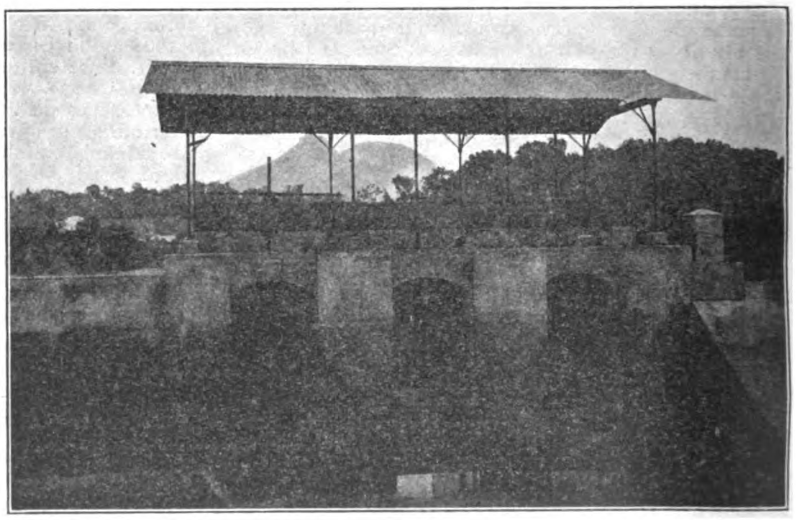


MAP OF JAVA SHOWING IRRIGATION WORKS AND CONSTRUCTION

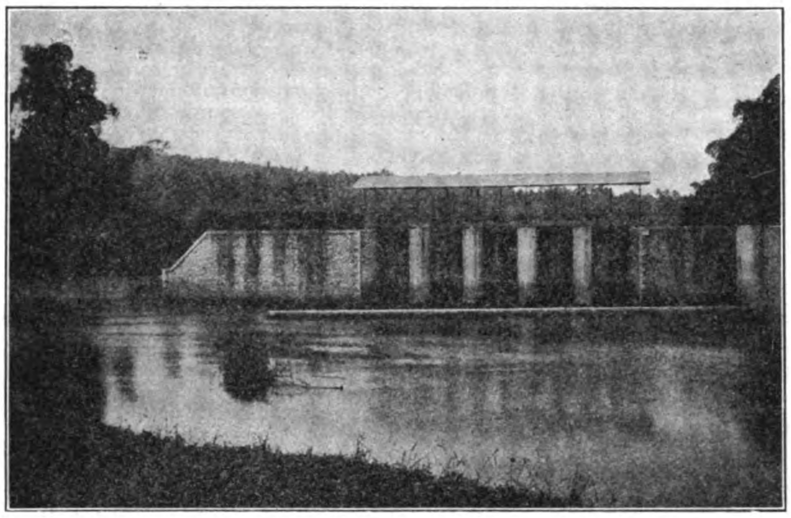
*Excerpts from *Preliminary Report on Irrigation in Java* by J. W. Beardsley, Mem. Am. Soc. C. E. and Consulting Engineer in charge of Irrigation Works, Philippine Islands.



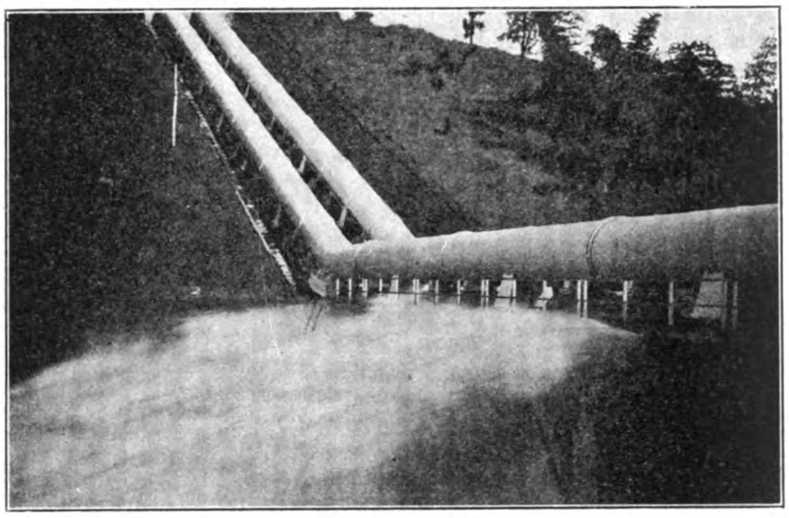
KEDOENG KANDANG CANAL—DISCHARGE SLUICES 550 METERS BELOW HEADWORKS
Canal nearly emptied. Note curved masonry approach to discharge sluices.



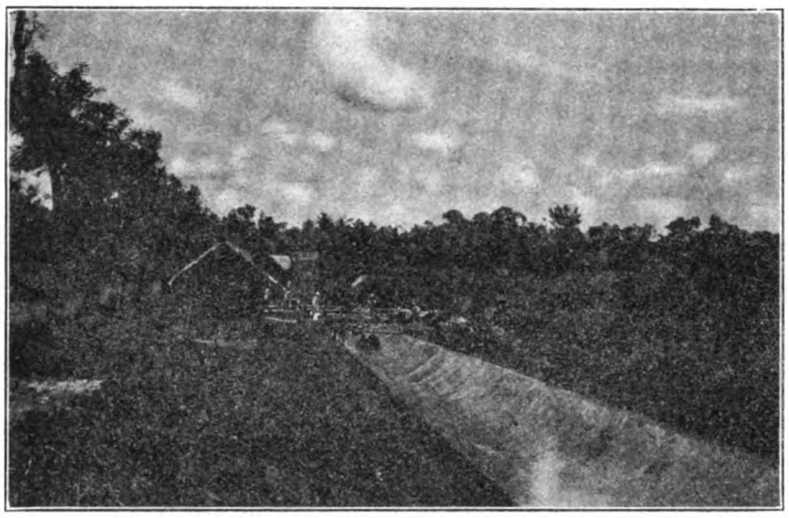
KEDOENG KANDANG CANAL—FRONT VIEW OF THE DISCHARGE SLUICE GATES (OPEN)



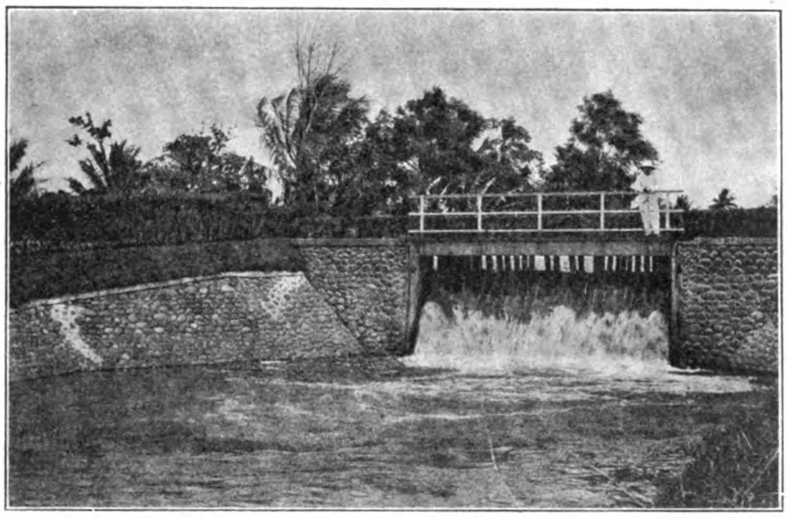
KEDOENG KANDANG CANAL—HEADWORKS AND FRONT VIEW OF INLET GATES.
Note pier wall leading to discharge sluices.



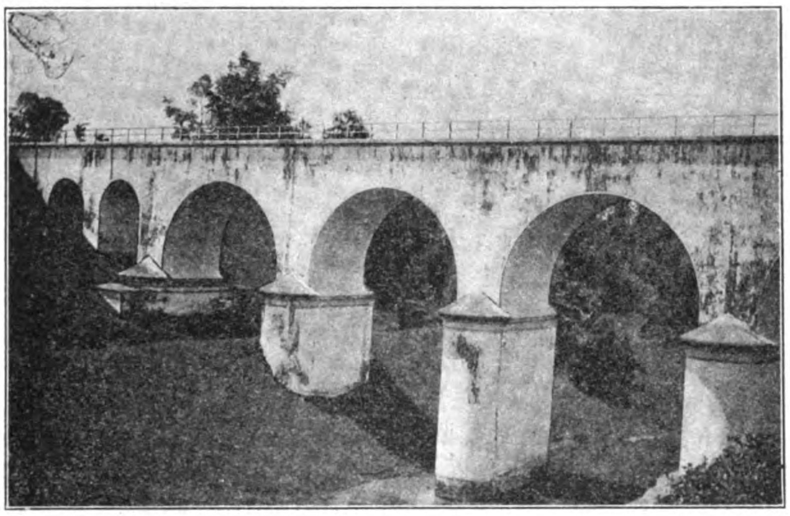
MOLEK CANAL—TAKEN FROM BRIDGE.
Metro siphon crossing the Metro River. Discharge sluices at the center of span are open. Diameter of tubes, 1.8 meters. Velocity, 2 meters. Discharge, 10 cubic meters per second.



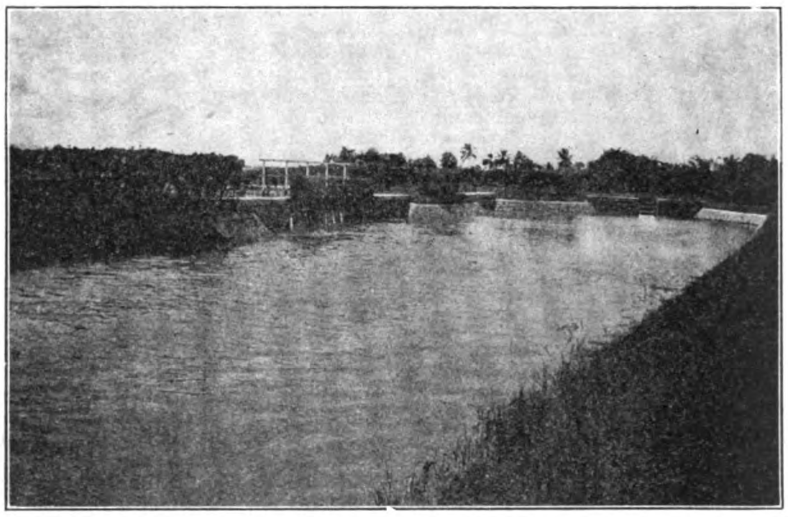
KEDOENG KANDANG CANAL—CURVED BASIN TO DESTROY ENERGY AT FOOT OF SLOPE.
Fall of water-slope of canal, 1:25. Masonry lining, 0.25 meters



KEDOENG KANDANG CANAL—NEEDLE DAM BELOW INLET TO SECONDARY AND TERTIARY CANALS.



KEMANTEN AQUEDUCT CROSSING THE KALI MERIE—KEDOENG KANDANG CANAL.
Total length, 125 meters; arch spans, 12, 6, and 4 meters



KEDOENG KANDANG CANAL—ABOVE NEEDLE DAM.
The canal at this point is above the adjacent ground.

ment, to the construction and maintenance of village roads, police duty, service to officials (inlanders), water supplies, and other works of public necessity to the village, and more especially to the construction of tertiary canals of irrigation systems, or of those serving areas of about 140 hectares, or less; and of all laterals and distributing canals and ditches, and the maintenance of minor irrigation works.

The residencies have special regulations relative to the time and service required. For service for the government compulsory labor varies from ten to twenty days, but is not required in all residencies. In the year 1906 the total number of natives subject to service was 3,456,611. The maximum number of day's labor available was 60,529,512, of which there was actually required only 13,960,754.

This service was distributed as follows:

Repairing and cleaning public roads.	3,051,089
Furnishing surfacing material.......	8,808,196
Repairing and maintaining irrigation works..........................	2,101,469
Total......................	13,960,754

The above does not include the compulsory service rendered to the villages, public works, and officials.

Population.—The population of Java including the Island of Madoera has doubled during the past thirty-five years. Its annual increase is estimated at about 400,000.

The census of December, 1905, gives the following figures:

Europeans	64,917
Chinese	295,193
Arabs	19,148
Other Orientals, not inlanders	2,842
Inlanders and those equalized therewith	29,715,908
Total	30,098,008
Island of Madoera, total	1,493,289
Total population, Java	28,604,719

Present Government and its Divisions.—The central government is composed of the Governor-General, with an advisory board called the "Indian council," comprising five members, and the following administrative bureaus or departments: (1) Bureau of justice, (2) bureau of finance, (3) bureau of interior, (4) bureau of public instruction, public worship, and industry, (5) bureau of public works, (6) bureau of agriculture, (7) bureau of government occupations, (8) bureau of navy, (9) bureau of military.

The island is divided into sixteen residencies, or provinces, with an officer in charge of each called a "resident." He has a large control of all governmental operations in his territory. He is aided by an assistant resident, by a technical corps, by the necessary number of comptrollers, and, also, by a native regent, who directs the work of the native chiefs or village headmen. The policy is to govern the people directly by their own chiefs as far as possible.

The members of the Indian council are appointed by the Queen upon the recommendation of the Governor-General. The director of the interior recommends, and the governor-general appoints the residents and native regents.

The government owns practically all lands and water rights; it directly controls the railroads, the telegraph, the telephones, the trade in opium, the operation of pawn shops and loans, the mining of tin, etc., and is now proposing either to secure control of further industries, or else to enter into a new policy of restricting governmental operations to the necessary functions of a monarchy in its furtherance of the welfare of the people.

Considering their importance to public works projects, mention should be made of the landed estates created about a century ago, and which comprise an area of from about 100 to 300,000 bouws each (71 to 213,000 hectares). The conditions of these estates vary; some of them are almost separate governments, paying no taxes, possessing all water rights, and being entitled to the customary rights of compulsory labor. Over all, however, the government has the right of eminent domain, and the inhabitants may remove to other residencies in case the owners of these estates oppress them.

The government is proposing, when funds are available, to purchase these estates, and to remove these minor and semi-separate governments. It will, also, to-day, grant long period leases of land for useful purposes in almost unlimited areas, to European individuals or corporations, at an annual rental ranging usually from 1 guilder to 5 guilders per bouw (₱1.12 to ₱5.60 per hectare), provided the land so leased is not needed by the people.

The subject of land taxes in Java and the policy of the government to provide reimbursements for expenditures on irrigation projects, will be of special interest in connection with the present attitude of the people of the Philippine Islands toward this subject.

The government of Java is monarchial; all proprietary rights to land and water are vested in the government, and the extensive laws relative to such properties in a democratic form of government are almost entirely lacking. The inlanders and those equalized with them, possess ancient customary rights to the use of the land and water. These rights can not be sold except to other inlanders, and if held by a member of a community, such customary rights must revert to the community, in case the owner of such customary right dies or removes to another locality.

Central Java is occupied mainly by communities, and the remainder of the island by private owners. In a community the land is allotted to the members thereof every five or ten years by the head of the village. The government is continually increasing its knowledge of land products. A cadastral and soil survey has been in progress for a few years, but the expense, 1 to 2.50 florins per bouw (₱1.12 to ₱2.80 per hectare) is too great to permit this work to be vigorously prosecuted.

The welfare of the people and their ability to pay the land tax are given careful consideration. The tax is based upon the gross products of the land, and is to-day considered low. At present the tax is based in part upon a topographical survey under execution by the military for all other branches of the government. The cost of these surveys averages about one-half guilder per bouw (₱0.56 per hectare).

For the past ten years the annual value of the land tax has been about 8,000,000 florins (₱14,400,000). Each owner is advised regarding the amount of his tax, and failures to pay are rare. The taxes are reapportioned every ten years. New regulations have been issued recently and a reapportioning of the tax is in progress. The land-rent staff comprises men of high ability and long service. It is composed of an inspector and his adjutant and a few comptrollers, together with some inlander officials. The following notes show the essential features in levying this important tax, and are based upon the revised regulations enacted July 2, 1907, Ordinance No. 277.

(*a*) Exemptions from the tax are: Newly fallowed rice fields for the first three years; communal pastures; sacred grounds; and grounds occupied by works of service to the public. The land tax is levied on rice fields, and on dry grounds, ponds, and nipa marshes.

(*b*) Special instructions are given for measuring the parcels of land subject to the land tax, and for grouping them and measuring their productiveness. This work is done by the land-rent staff in deliberation with native chiefs, and the customary rights and practices of the inhabitants are considered.

(*c*) The productiveness of groups is determined upon small trial fields with normal crops. The land rent is a minimum of 8 per cent and a maximum of 20 per cent of the gross market value of the crops. Special conditions exist modifying and increasing these percentages.

(*d*) For dry lands, ponds, and nipa marshes, the estimation of the land rent shall not be less than 0.25 florin or more than 20 florins per bouw (₱0.28 to ₱22.40 per hectare).

(*e*) Records are compiled and filed, and the land rent once fixed remains in force for a period of ten years.

(*f*) The regulations cover private or individual property and communal property with permanent and nonpermanent shares, and provide for the correction of errors and the addition of new parcels and groups, and, also, provide for a discharge of the land rent due in case of noncultivation, bad crops, or expensive improvement of lands.

(*g*) These regulations are not applicable to ground planted, either by free or compulsory labor, with coffee, the production of which is delivered to the government.

(*h*) The head of the provincial government fixes the rules for the collection of the land rent, which is collected by the head of the village or hamlet, who receives 8 per cent therefor.

(*i*) Specific regulations are also proposed for measuring of lands subject to land rent.

(*j*) The inspector of rural revenues and compulsory labor determines the districts on which data must be collected. Charts to a scale of 1 to 5,000 of 1 to 2,500 must be prepared or revised by the land rent surveying staff of the topographical division.

(*k*) The special registers for each hamlet record the measurements, boundaries, and area of each parcel, and the class to which it belongs, including lands not subject to land rents. Detailed instructions are given regarding the objects to be shown on the map, conventional signs, etc., also computations of areas, and the organization, duties and responsibilities of the various parties concerned.

(*l*) Additional to the minute plans, the hamlet charts and the map of the district, a monograph is prepared, furnishing data on condition, use, and improvement of agricultural grounds, general economic conditions, population, market prices, and the losses, resources, and revenues of the farmers, and on the status of the land rates.

(*m*) Owners or holders of individual rights may lease the use of this land for short periods, but regardless of such leases the owner is responsible for the payment of the land tax.

Detailed regulations control the leasing of land by the government, or by inlanders, to private parties or to corporations. Those lands not of use to the inlander are leased to residents of Holland, or to European residents of Netherlands India, or to companies incorporated in Holland or India for long periods up to seventy-five years. Several thousand such leases exist; they are in parcels of 500 bouws (355 hectares) or less, but several parcels may be incorporated in one plantation, some of which aggregate 12,000 bouws (8,520 hectares) or more. The lease is offered in competition to the bidder offering the highest annual land rent per bouw. The successful bidder must pay the cost of measuring and charting the land. The cultivation of the poppy and salt making are prohibited, and the cultivation of coffee adjacent to the coffee plantations of the government is restricted by definite regulations. Additional to the land tax, general taxes must also be paid on the net revenues of production, and on structures, as buildings, factories, etc. The land tax is not levied during the first ten years on these long lease plantations. Six hundred and twenty-one thousand seven hundred and four bouws (441,410 hectares) are so leased by the government, the principal productions of which are, coffee, tea, tobacco, cinchona, cocoa, pepper, rubber, etc. In general, areas so leased are not subject to irrigation. Inlanders, under similar regulations may lease to others for short periods only lands over which they hold customary rights. Several hundred such leases exist, which include the large sugar plantations of east Java.

The lessees are mainly Europeans and Chinese. The residencies under the control of the Sultans of Djokjakarta and Soerakarta, aggregating 9,295 square kilometers, are leased, also, largely to Europeans.

These particular lands sold by the government in the early part of the nineteenth century, or granted for service of special value to the government, are located mainly in the residencies of Batavia and Semerang; they are in area from a few bouws up to estates of 300,000 bouws (213,000 hectares). The aggregate area of these landed estates is 1,290,847 bouws (1,916,500 hectares).

Cultivated Area.—The total area of Java and Madoera is 131,000 square kilometers, or 13,000,000 hectares. Based upon cultivation this area may be classified as follows:

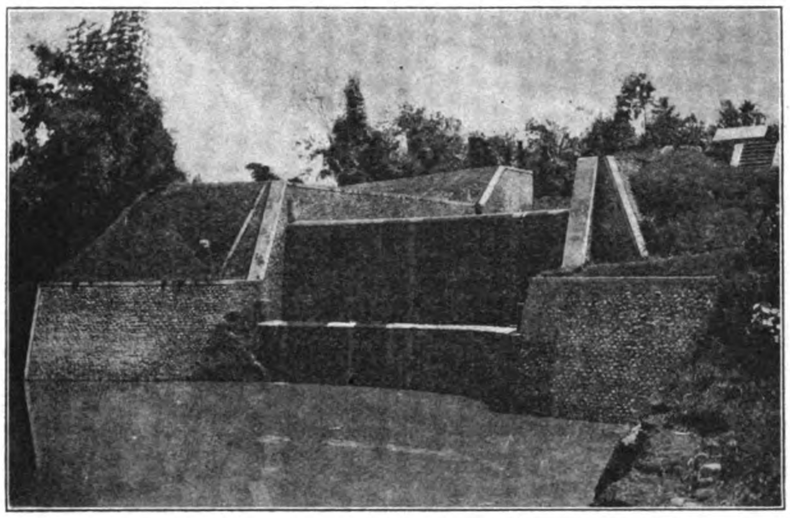
Character of lands.	Area.	
	Bouws.	Hectares.
Owned by inlanders:		
Irrigated rice fields	1,826,754	1,296,995
Rice fields watered by rainfall only	1,044,668	741,715
Marshy rice fields	65,867	46,765
Nonirrigated lands (not including the village areas)	*a*1,276,272	906,153
Total	4,213,561	2,991,628
Other holdings:		
Lands occasionally cultivated	155,107	110,126
Government coffee plantations	*b*102,354	72,671
Government cinchona plantations	1,522	1,081
Government lands leased to planters	*c*621,704	441,410
Landed estates (old grants)	1,290,847	916,502
Total cultivated area	6,385,095	4,533,418

a These areas are estimates. Only those covered by the new surveys are accurate. It is stated that the irrigated areas may be increased 50 per cent, and that the dry land, including the village areas, may be increased by 100 per cent. Correcting the above figures on this basis will give 49.5 per cent of the total area under cultivation.

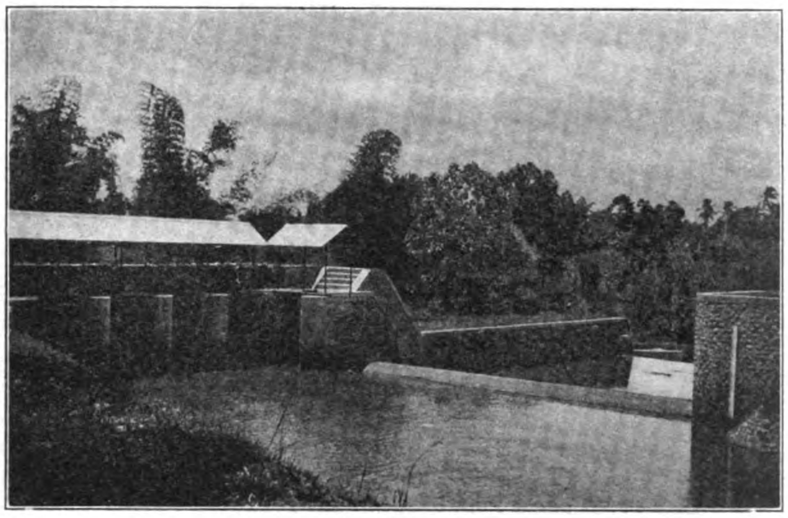
b These plantations are decreasing; they are operated by compulsory labor.

c Tea and coffee plantations aggregate 212,038 bouws, or about one-third of the area leased by the government.

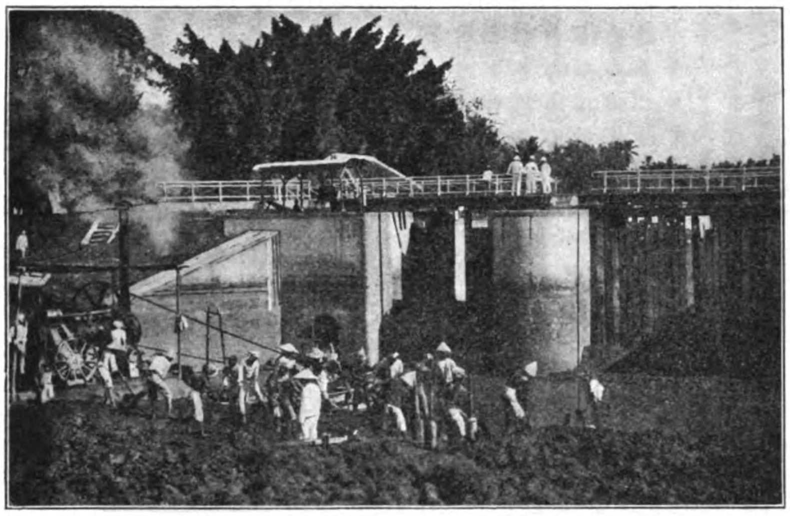
Percentage of total area equals 34.6 per cent.



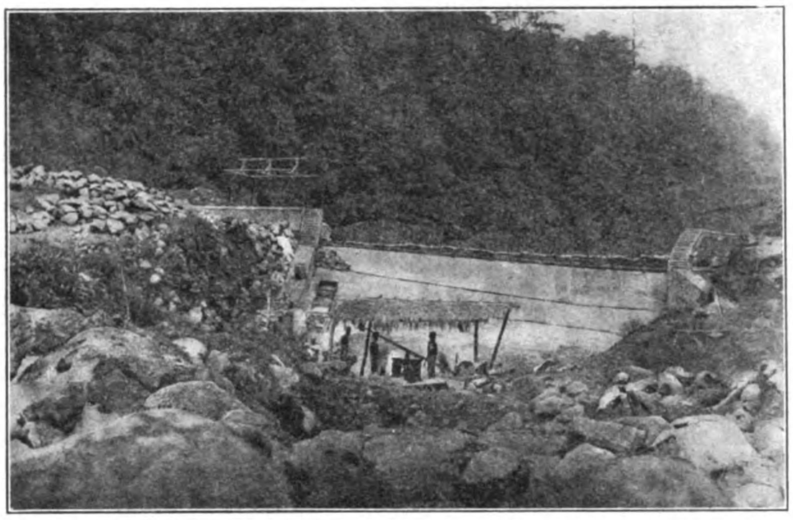
HEADWORKS AND FLOOD-DISCHARGE WEIRS FOR THE KALI MERIE—VIEW FROM BELOW.



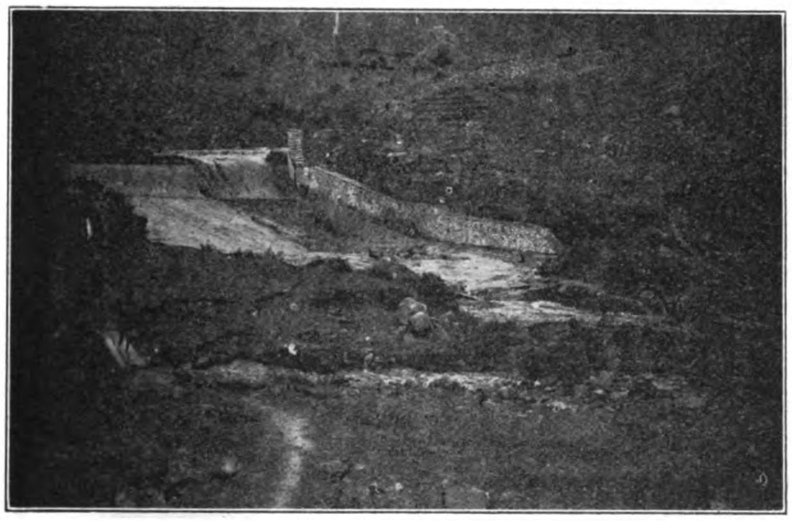
HEADWORKS AND FLOOD-DISCHARGE WEIRS FOR THE KALI MERIE—VIEW FROM ABOVE.



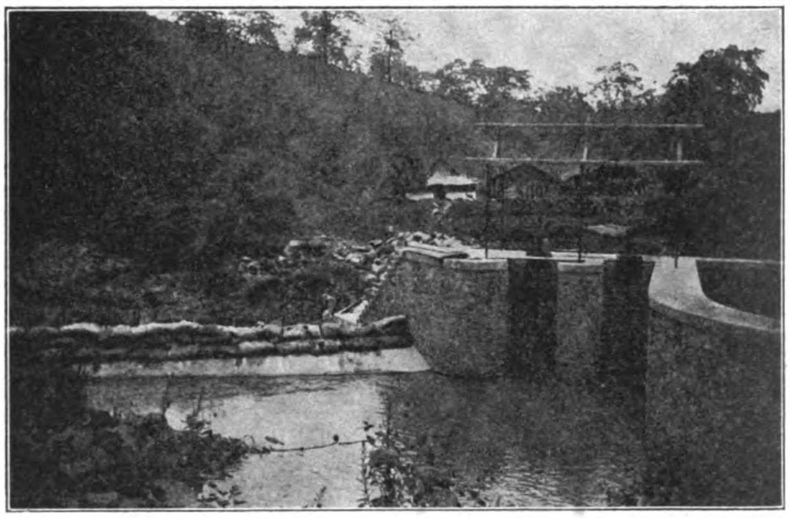
MERILIP SHIP LOCKS AND DISCHARGE WEIRS—CONTROL WORKS FOR THE SOERABAJA RIVER, PROTECTING THE HARBOR.



DJANDJING CANAL (AND RIVER)—HEADWORKS NEARLY COMPLETED. Note that crest of discharge weir is 0.60 meter higher near headworks.



MERILIP SHIP LOCKS AND DISCHARGE WEIRS—AFTER SUDDEN FLOOD HAD WASHED AWAY THE TEMPORARY LEVEE ON THE CREST OF THE DAM.



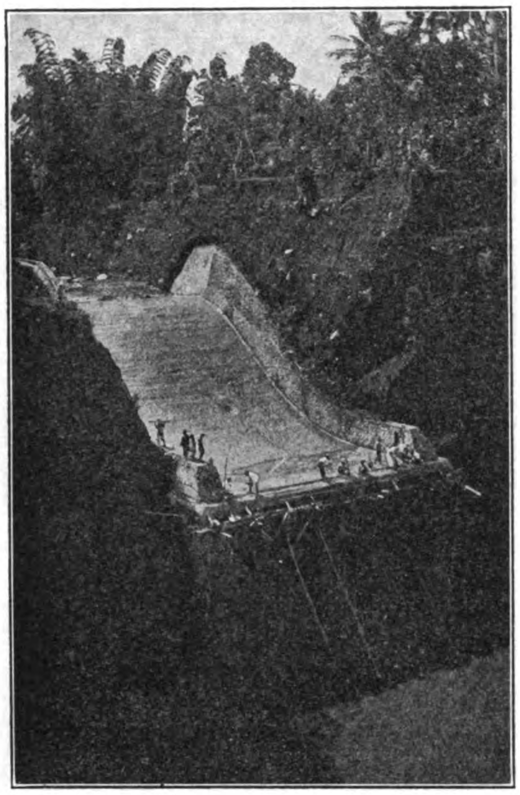
DJANDJING CANAL (AND RIVER)—FRONT VIEW OF INLET SLUICE GATES.

Bureau of Public Works.—The bureau of public works was organized in 1854. The present organization of the bureau consists of the Director, who is the executive head, and who reports to the Governor-General.

This bureau was responsible until 1908 for the division of posts which was then placed in the newly created bureau of government occupations. It is also responsible for the division of railways which will be transferred during the present year to the same bureau, and for the division including general engineering works outside of Java, for the four districts into which Java is divided, for telegraph, telephones, public buildings, roads, bridges, steam boilers, harbors, river control, and irrigation.

The Director is assisted by seven head engineers; one of whom is in charge of the technical work outside of Java. Four head engineers are in charge of the four districts into which Java is divided, and two are in charge of technical work in the Batavia office, of which one has public buildings, roads, bridges and harbors, and the other, irrigation and river control. Approximately 100 engineers are authorized, of which 70 are available in the field.

The corps of engineers is European, and it is assisted by such architects (experienced constructors), surveyors, and other subordinates as the work may require. With few exceptions the clerical and drafting forces are inlanders. The engineers are divided into first, second, and third classes, and aspirant engineers, the mini-



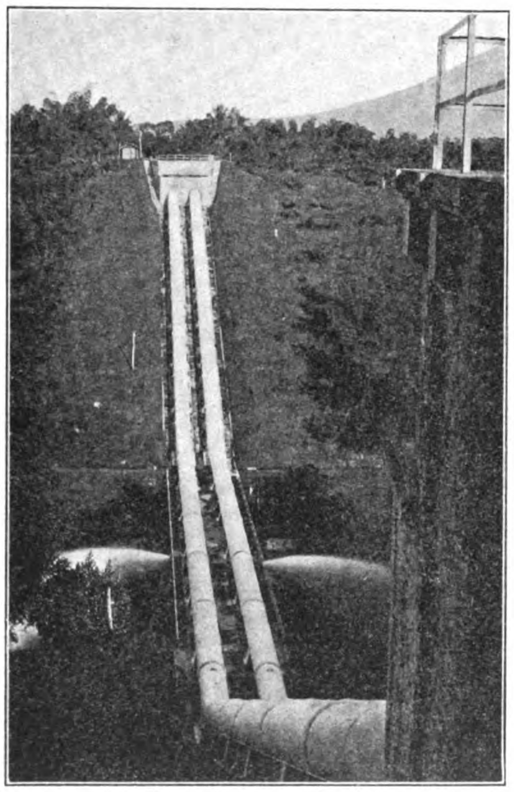
DISCHARGE WORKS—THE DIVERTING OF THE KEPOELOENGEN RIVER INTO THE KALI KAMBING—FALL OF WATER, 10 METERS.

These works were constructed to prevent further erosion of the river bed and the destruction of irrigation canal headworks.

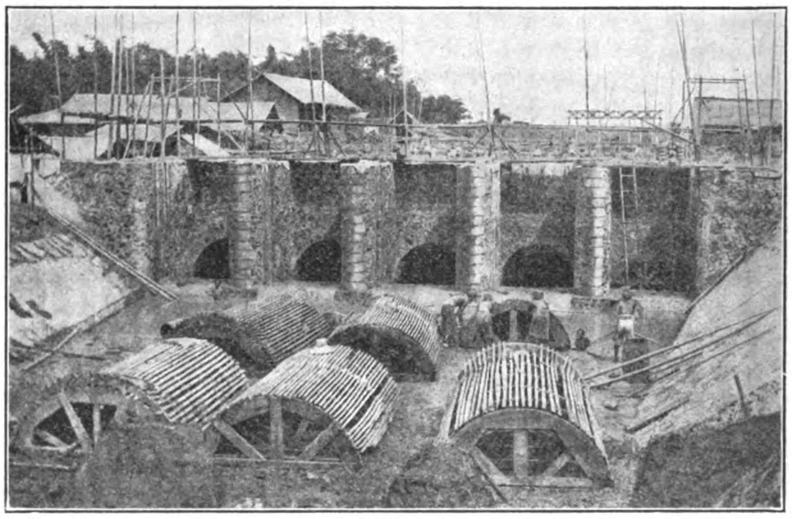
DJANDJING CANAL (AND RIVER)—SECURING TOOLS AND MATERIAL DURING FLOOD; ALSO CASTING MATERIAL TO BE EXCAVATED INTO THE FLOOD.

TJIOEDJOENG CANAL (NORTH BANTAM), SERVING 30,000 BOUWS.

Main channel completed, section repairing slides.



MOLEK CANAL—TAKEN FROM FIRST ABUTMENT.

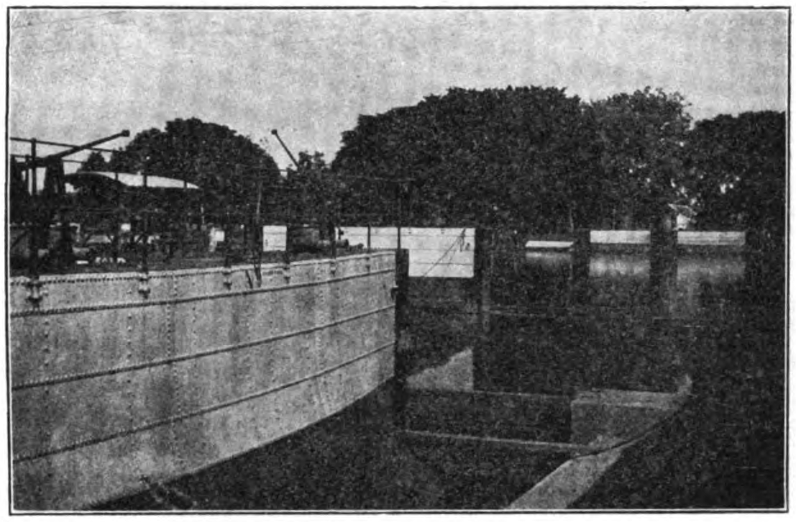


TJIOEDJOENG CANAL—ENTRANCE TO THE SECOND SIPHON CARRYING THE IRRIGATION CANAL UNDER THE TJI ASEM.

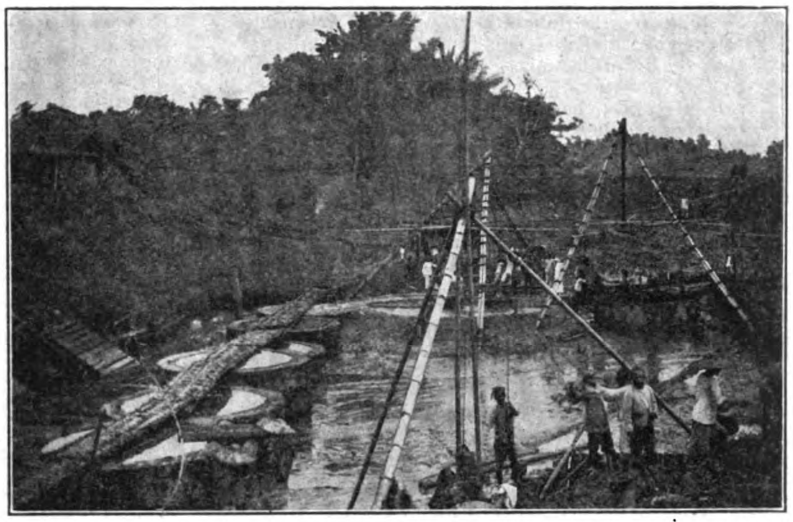
mum salaries of which are, 700, 500, 350, and 250 florins per month respectively. The minimum period of service indicated by these classes is fourteen, eight, and two years, for the first, second, and third classes, respectively. Valuations and other requisites are liberal, and a pension is provided after twenty years of actual service, amounting to one-fourth of the highest pay earned, and to three-eighths if the service extends to thirty years.

Irrigation in Java has been practiced from time immemorial. The work consisted of a utilization and conservation of the rainfall and some diversion of water from the rivers; all structures were of a primitive and temporary type. The labor and material were furnished by the people. The government gave special attention to the development of agriculture early in the nineteenth century, and to propositions for extending irrigation works.

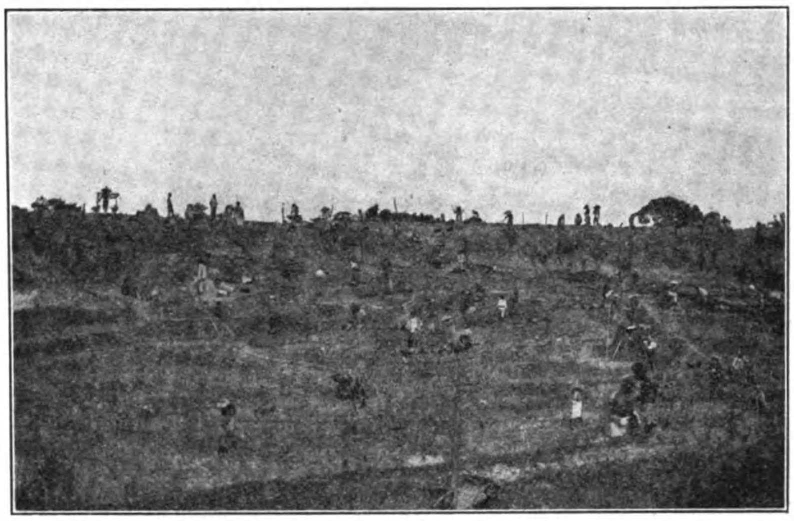
During the years 1845-1849, 622,000 florins (₱497,600) were expended on irrigation. The utility of the works accomplished is doubtful, and it is probable that the funds were expended by native chiefs and other officials for various other purposes as well as for those of irrigation. The number of technical men available was small; the investigation and preparation of plans was limited, and it was the exception when the works accomplished fulfilled the required conditions.



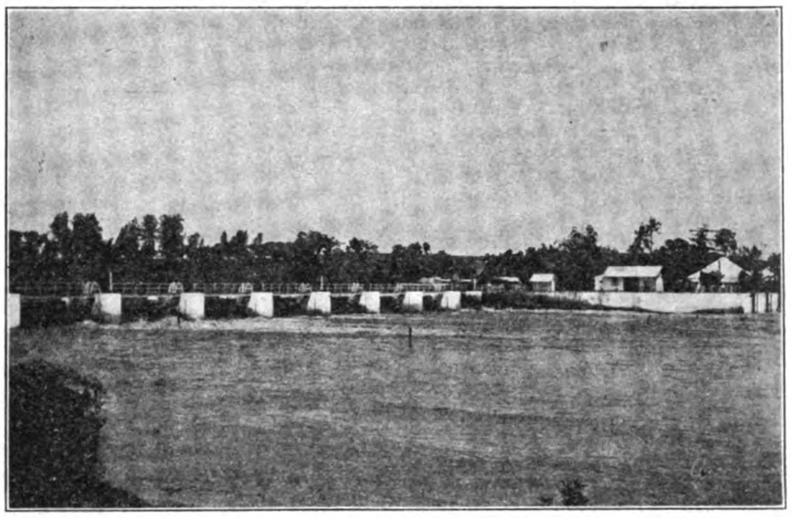
SENGHONG WEIR (NEAR MERILIP)—SHIP SHUTTERS IN DRY DOCK FOR REPAIRS
The first and tenth shutters are always in place; the remainder are used only during low water.



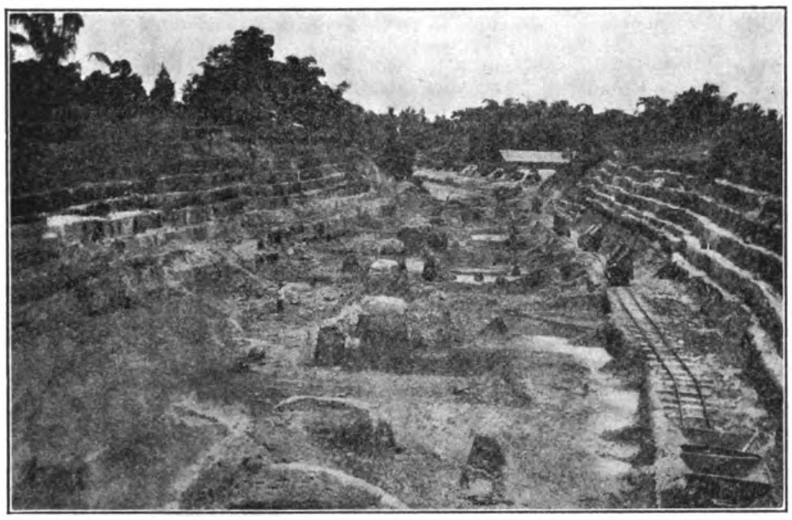
THE TJIOEDJOENG HEADWORKS UNDER CONSTRUCTION—"WELL" FOUNDATIONS FOR LEFT ABUTMENT



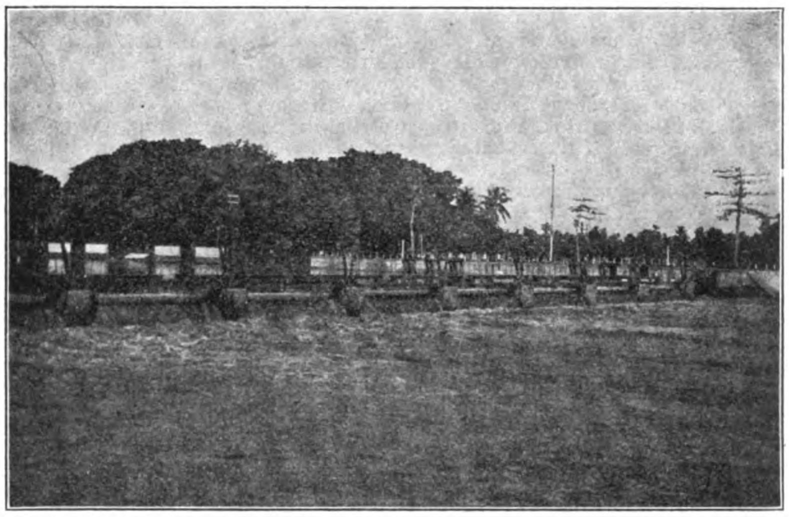
TJIOEDJOENG CANAL—MAIN CANAL COMPLETED—SECTION REPAIRING A HEAVY SLIDE



SENGHONG WEIR (NEAR MERILIP)—PORRONG RIVER, DELTAIC DISCHARGE OF THE BRANTAS IMMEDIATELY BELOW THE SENGHONG WEIR—SHIP LOCKS ON RIGHT



TJIOEDJOENG CANAL—ROCK CUT AT KILOMETER 11



SENGHONG WEIR (NEAR MERILIP)—SHIP SHUTTERS IN BACKGROUND

During the early history of the bureau, and up to 1872, the various irrigation projects consisted mainly of changing native types of structures to permanent structures. In 1872 a general survey of the Demak project was authorized. This was the first projects receiving thorough technical consideration.

In 1885 new instructions were issued, and a special corps of engineers, under the bureau of public works whose duties were to be confined to irrigation projects only, was authorized. These instructions required specific attention to—

(1) The improvement of all insufficient and unsatisfactory works.

(2) The control and supervision of irrigated lands dependent upon the rainfall and where the population was dense.

(3) The investigation of irrigation in areas slightly populated.

While these instructions did not authorize investigations of new irrigation projects, the number of engineers continued insufficient to attain the desired results. The preparation of topographical maps was, however, commenced, and the collection of hydraulic data started.

In 1890 these investigations had been sufficiently advanced so that the director of public works prepared a report on sixteen important projects, for which the estimated expense of construction, including 9,000,000 florins (₱7,200,000) already expended, aggregated about 45,000,000 florins (₱36,000,000). The cost of investigations up to 1889 had been 380,000 florins (₱304,000) for these sixteen projects, and it was estimated that 588,000 florins (₱470,400) would be required to complete the investigations. These estimates did not include the tertiary canals, serving areas of from 150 to

250 bouws (106 to 177 hectares) which were to be built by the inhabitants, without expense to the government. This report recommending that the 16 projects be executed was submitted to the Governor-General, by whom it was approved and the works authorized. These projects are in part completed today; one extension project has been indefinitely abandoned, and several additional projects have also been authorized and completed, or are in progress.

Surveys and investigations estimated to cost not more than 5,000 florins (₱4,000) in any one year, are authorized by the Director, subject to the approval of the Governor-General. Larger expenditures are authorized by the Governor-General. Projects estimated to cost more than half a million guilders (₱400,000) are usually referred for authorization by the Governor-General to the home government.

New irrigation projects may originate with the resident of a residency or province, or with planters, or inlanders who would be benefited thereby. Usually requests for new projects are taken under consideration by a special commission composed of a representative from the departments or bureaus of the interior, of agriculture, and of public works. The benefits to be derived by the proposed works are carefully considered and the commission usually visits the area concerned, reporting thereon to the Governor-General, who, if the project is approved, authorizes the necessary action. The engineers in charge of the irrigation districts in which the proposed projects are located make the required investigations, and construct the works by day labor if the projects are small. Special engineers are assigned to the larger projects.

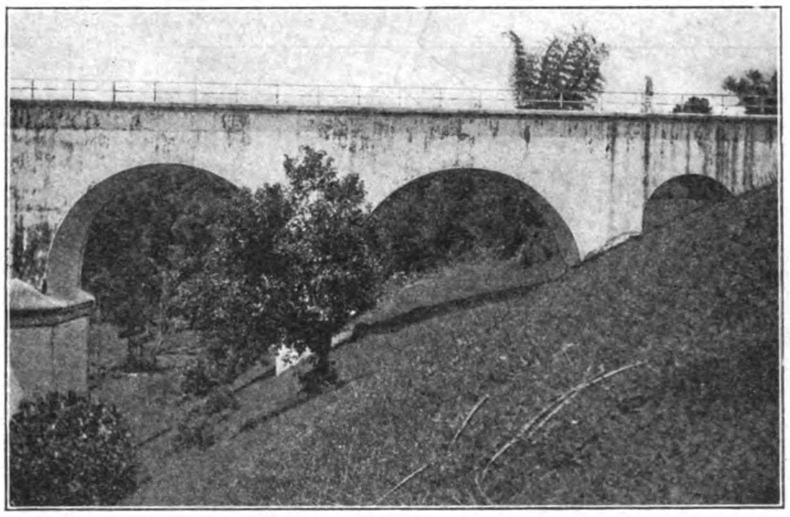
Irrigation districts are determined by the drainage area of the important rivers, and are independent of the political boundaries. As a result, irrigation districts may include several residencies. In theory the irrigation engineer is also subject to the orders of the resident as well as to the bureau of public works. With the centralization of government so characteristic of Java this duplication of superior officials causes no inconvenience.

For the small projects, and where hydraulic data on streams are known, one or two years is usually required to prepare complete reports; five years is regarded as the minimum period for hydraulic data on which designs are based; and for the important projects a period of ten years is regarded as necessary for the collection of reliable data on rainfall, stream discharges, floods, etc.

Works are generally divided into protective works, and productive works; the latter should give an increased revenue to the government through an increase in the land taxes aggregating at least 6 per cent of the cost of the irrigation works. If the revenues are measured only by the increase in land taxes, practically none of the irrigation projects in Java are productive. A consideration of the question of revenue does not, however, affect the preparation of the project or the recommendations of the engineers. When the project has been authorized, the head irrigation engineer is responsible for the execution of the work. Under approval of the Governor-General compulsory labor in exceptional cases may be required, if sufficient free labor does not present itself. In case compulsory labor is required, an equitable rate of wage is paid. The construction of headworks and the main and secondary canals are under the immediate supervision of the engineer. The construction of the tertiary canals, or those serving approximately 140 hectares of land, and all lateral and distributing canals therefrom, are executed by compulsory labor without expense to the government, under the native officials of the village in which reside the owners of the land benefited, but under such supervision of the irrigation engineer as may be necessary. The engineer's duties, in connection with the distribution of the water from the tertiary canals, is advisory only, unless disputes arise, in which case his decisions are final. An observance of the customary right of the inlander is rigidly followed.

Practically no construction work is executed by contract. Also there are no laws having special reference to irrigation. The procedure depends upon local conditions, and any executive regulations are subject to change by the director of public works, or by the head engineer in charge of the division of irrigation. The government holds proprietary rights over all lands and waters. Prior use of water on land is a property right to the party or community holding the customary rights to the use of the land, provided such use is necessary and practised with economy. The policy of the government is that the water shall be used for the benefit of the largest number of people, and that it shall be equitably distributed to the crops; that all cultivated property shall pay as much as possible, and that improvements in irrigation are a duty of the state, and should be executed as rapidly as available funds will permit, on account of the increased area placed under cultivation, and the increase in public and private property values. Further improvements also decrease the danger of famine or shortage of food stuffs, and only incidentally are they constructed, on account of the increased revenue derivable from the land taxes. It also holds that the larger plantations should voluntarily pay for irrigation projects proportional to the benefit received. Some of the larger estates are paying nothing; considerable amounts are contributed by others, and a proposed law requiring an equitable payment from these estates is now under consideration. The government is evidently proposing to place existing irrigation works on a paying basis, and to make new projects productive as fully as possible. Experience has proven that under the present policy the increased revenue derived from land taxes does not reimburse the government for the cost of irrigation works. Additional revenues are derived from a general tax of about 5 per cent on the net receipts of the larger plantations.

KEDOENG TJALOCK CANAL HEADWORKS, MARMOIO RIVER—WORKS NEARLY COMPLETED



SENGHONG WEIR (NEAR MERILIP)—CONTROL OF THE BRANTAS AND PROTECTION WORKS FOR SOERABAJA HARBOR, 50 KILOMETERS BELOW THIS PLACE
Mangetan Canal, center (30,000 bouws); Porrong Canal, left (18,000 bouws.)

The basis of the land tax is the value of the products and the ability of the native landholder to pay. Irrigation may double the tax levied prior to construction. The tax varies from 5 per cent to 20 per cent of the value of the crops raised, and in exceptional cases to 25 per cent. The usual value of the tax after irrigation works have been in operation for three years, is from 7 per cent to 15 per cent of the value of the crops raised.

Regulations relative to irrigation and to the distribution of water differ in the various residencies. The following notes relate to the Pemali irrigation system. The entire area is about 45,000 bouws (31,950 hectares). It is divided into tertiary units of areas varying from 150 to 250 bouws (106 to 177 hectares) each, served by a tertiary canal or ditch. The size of these units is considered of importance in the economical and advantageous distribution of water, which is the duty of a native village official specially appointed by the rice cultivators.

These units for the Pemali system are divided into five groups, irregularly arranged so that portions of the entire area are subject to identical conditions. The first unit of each group is heavily watered from October 15 to November 1, and the second unit for the following 15 days until the entire area is supplied. The distribution of water from October 15 to November 1 alternates so that each set of units during a five year period receives the advantages of the first watering. The units first watered produce crops varying from 50 per cent to 100 per cent larger than those last to be watered, on account of which not more than three groups should be used if practicable.

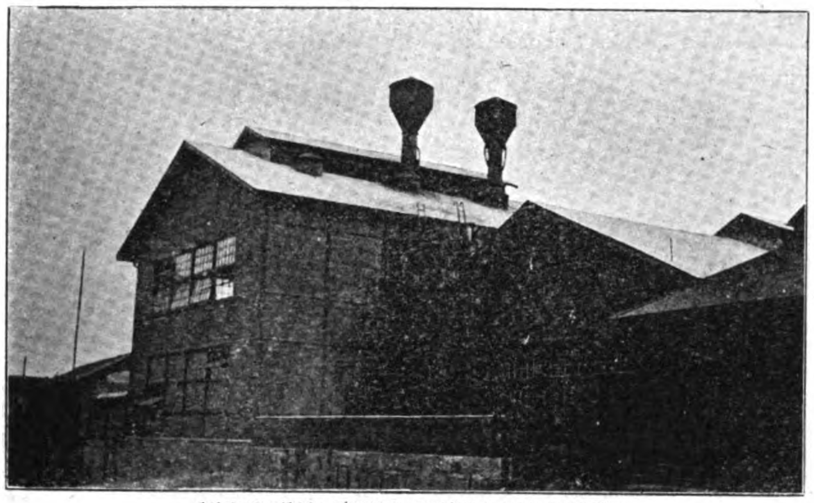
The accompanying illustrations are published by courtesy of the Director Bureau of Public Works, Philippine Islands.

THE SHANGHAI GAS WORKS

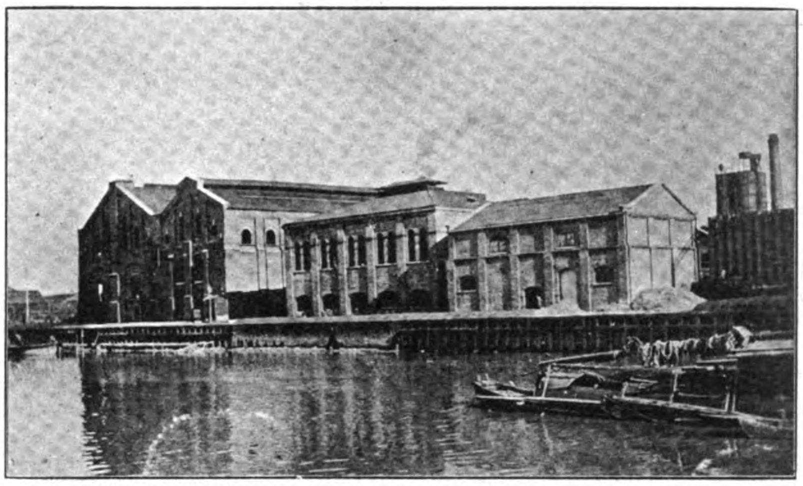
GAS VERSUS ELECTRICITY IN SHANGHAI

In the June number of The FAR EASTERN REVIEW, a short sketch of the operations of the Shanghai Gas Company was included in an article on the Public Works and Public Service corporations of the Settlement. Unfortunately at that time we were unable to secure photographs to give a fuller idea of the extent of these works, which merit a place in the front ranks of Far Eastern industries and stock companies, and whose growth from a small beginning to its present prominence has kept pace with, and been typical of, the general advance of the town. From an insignificant plant or small pretensions to probably the largest outside Europe or America, is a record which speaks volumes not only for the business management and foresight of the various Boards of Directors, but throws a strong sidelight on the progress and development of the small treaty port to the important cosmopolitan city of today.

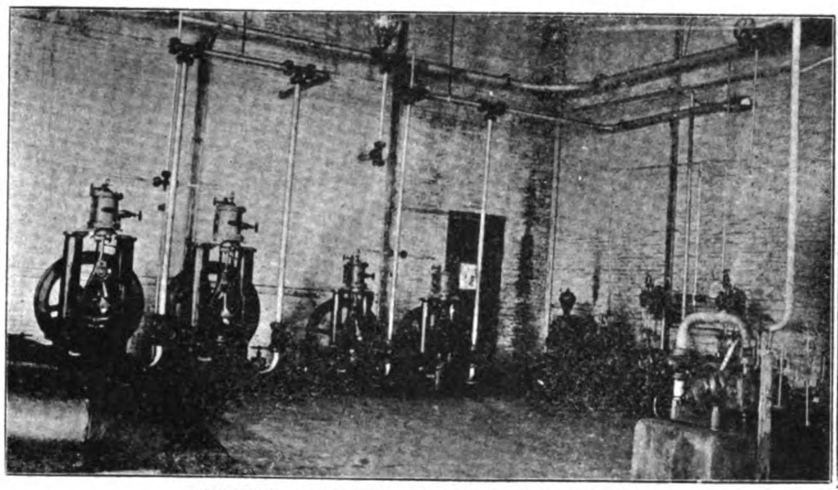
In the days when the foreigner was still struggling for a firm foothold in the almost forbidden Empire of Heaven, back 55 years, to 1864, the Shanghai Gas Company was floated, with a capital of Taels 121,350, to furnish gas to the British and so-called American Concessions. When the plant was erected and the first gas turned into the mains, only 58 consumers were supplied. The original plant was located on Hankow Road, but was shortly afterwards moved to its present central location on Tibet Road. The selection of this site, at that time on the limits of the Settlement, is a tribute to the judgment of the original directors who foresaw the growth of the Settlement and built their plans accordingly. Now



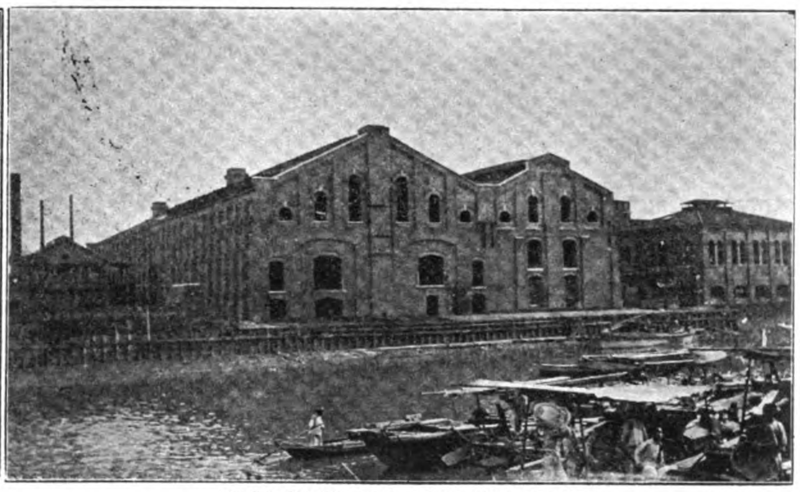
GENERATOR HOUSE. WATER GAS PLANT



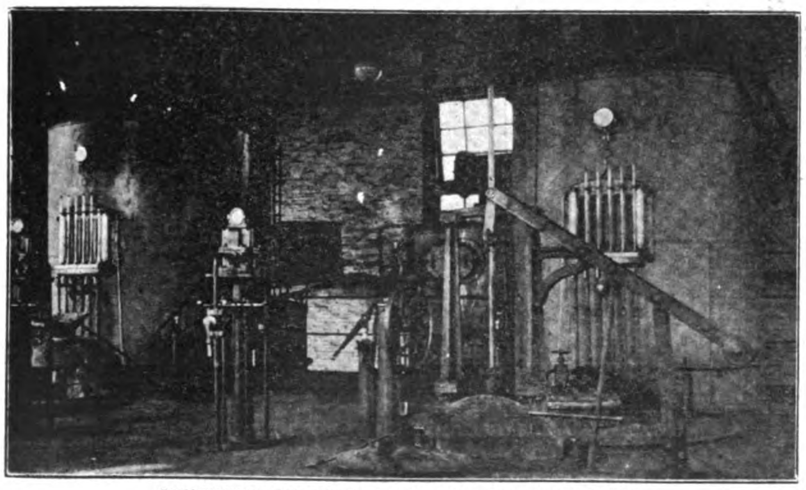
VIEW OF WORKS FROM SOOCHOW CREEK. COAL GAS PLANT



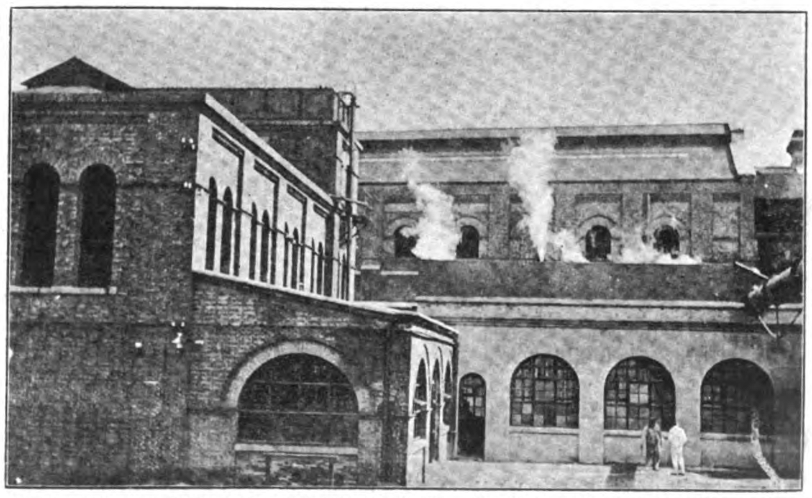
OPERATING FLOOR. WATER GAS PLANT



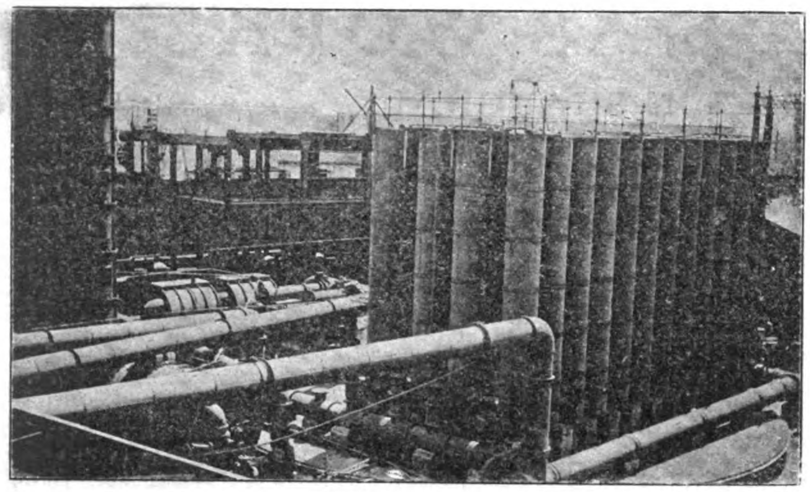
VIEW OF WORKS, COAL GAS PLANT

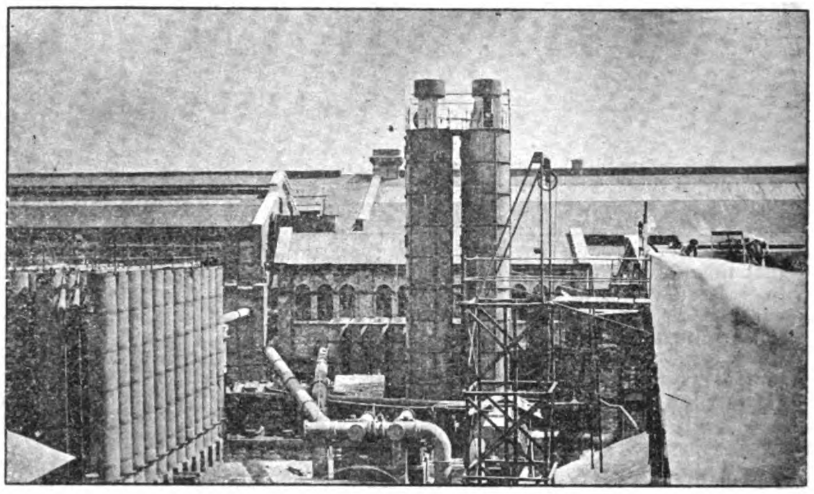


INTERIOR OF PUMP ROOM WATER GAS PLANT

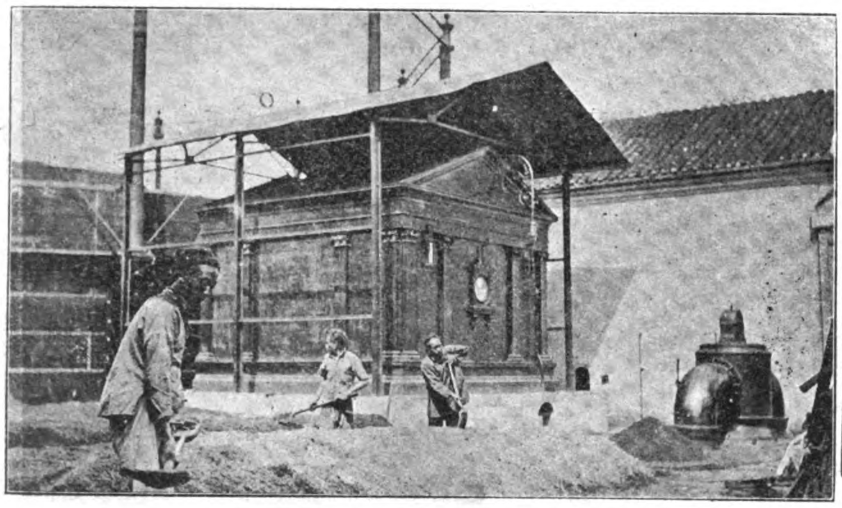


WATER GAS PURIFIER AND METER HOUSE, ALSO TAR AND LIQUOR PUMP ROOM

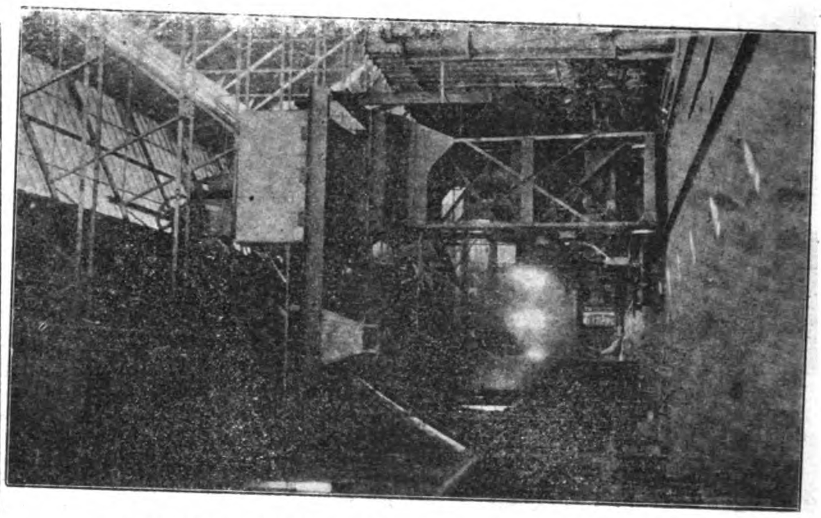




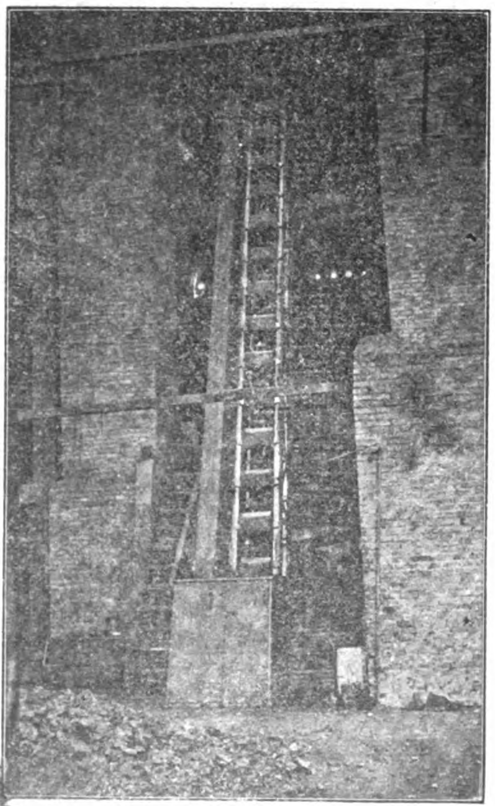
COAL GAS PURIFYING PLANT



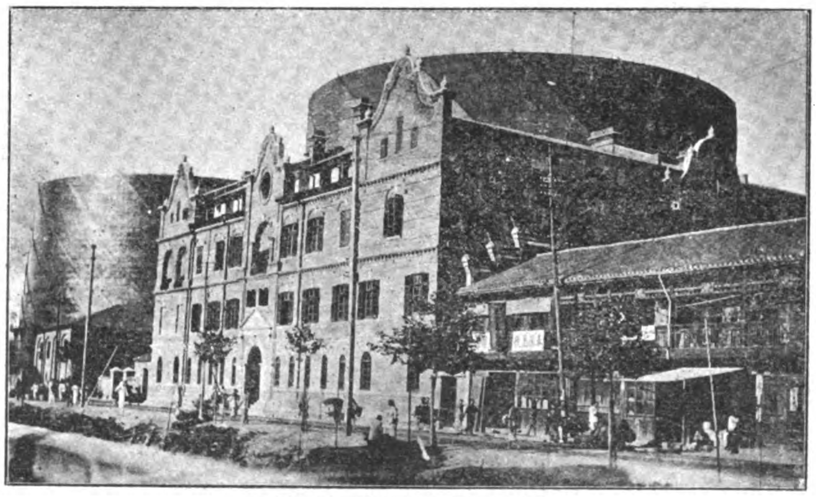
STATION COAL GAS METER



INTERIOR OF RETORT HOUSE, SHOWING STOKING-MACHINE



ELEVATOR TO RAISE COAL TO HOPPER WHICH FEEDS THE CHARGING MACHINES



OFFICES AND GAS HOLDERS

the site is in a most desirable and central location on a navigable creek, which permits the water borne coal barges to be unloaded at the works, a great economy in the running expense. The original supply of coal came from Australia. The plant struggled along for over twenty years on a small basis, handicapped by the slow development of the port, and the inherent prejudice of the natives to such foreign innovations which to them were possessed of the devil. In 1889 negotiations were successfully concluded for the purchase of the small opposition plant supplying the French Concession, which marks the real growth of the Works. At that time 237,000 cubic feet of gas represented the maximum daily output. Today, twenty years later, the Works have a capacity of over 3,700,000 feet daily, with an average daily paid consumption of over 1,350,000 feet. The consumption in recent years has advanced rapidly, trebling in eight years, necessitating the installation of a new plant capable of taking care of future requirements for some years to come. The extensions covering the building of a new holder, retort house, condensers, washers and scrubbers, and labor saving devices were commenced three years ago, and only recently completed. The increase of consumption in 1907 over the previous year was 9.59 per cent, and in 1908, 5.77 or over 15 per cent in two years. At this ratio the present capacity of the plant will be taxed to its full

limit in the next ten years. It is hardly to be expected that the rapid increase in the last decade of nearly 300 per cent, which is probably a record, can be sustained in the future owing to the keen competition of the electrical plants controlled by the municipal authorities. The present price of gas for lighting is $1.70 Mexican per m. with 5% discount to consumers of 20,000 cu. feet or more per month. For power, heating and cooking the price is $1.50 Mex per m. and the gas cooking ranges and heaters are loaned free, and gas engines, geysers and High Power lamps are furnished consumers at a nominal monthly rental. The Municipality enjoys a discount of 25% on current rates for public lighting, which netted them Taels 6,000 the last fiscal year. Electrical competition has induced the Gas Company to undertake the maintenance of incandescent burners at the low rate of 20 cents Mexican per month, keeping the burners in good condition and renewing mantles and chimneys whenever necessary. The number of consumers is over 8000 and it is a keen struggle between the gas works and municipal electrical plant to secure new business.

The leading streets are largely lighted by electricity as the municipal authorities naturally desire to show results consistent with low charges and a legitimate profit on their own undertaking. The Gas Company has, however, been awarded the contract for some 700 incandescent gas lamps in the International Settlement and about 90 in the neighbouring French Concession. The question of economy as between incandescent gas lamps and electrical lamps of the same candle power has engaged the attention of experts in all parts of the world, and both methods have many partisans. The merits of either system are based on initial cost and maintenance. In Shanghai, the matter has assumed importance to the general public or ratepayers, owing to the adoption of the metallic filament lamps in place of the incandescent gas lamps for street lighting.

The action of the municipal authorities has created a keen discussion as to the general relative merits of the competing systems, the pros and cons of which have been set forth by letters published in the Municipal Gazette. The Gas Company has submitted a proposal to the Council to adopt a new 60 candle power incandescent gas burner specially made to compete with a similar power metallic filament lamp, and offered to light, clean and maintain the lamp at a rate of $1.75 Mexican per month net, against a charge of $3.00 Mexican for a 60 c. p. metallic filament lamp. On the face of the proposition the Gas Company's proposal would seem to be for the benefit of the taxpayer. This proposal brought out some interesting replies from the Municipal Electrical Engineer, and the Board, who refused to adopt any general measures for utilizing gas in preference to electricity for street lighting. The Board pointed out that the $3.00 Mexican charged per month for the metallic filament lamp was inclusive of initial costs of lamps, standards current, maintenance etc., while the Gas Company's price was exclusive of these costs, and "recognized that gas lighting has recently shown an advance in efficiency, while remaining at a price lower than electricity. At the same time however it is not considered that such improvement would justify the Council in adopting it in preference to electricity, although the difference in cost in favor of the former is carefully borne in mind."

The letter then follows with a lengthy argument in favor of the electric light, which is too lengthy to quote in full, and in defense of the municipal plant, in whose success, the ratepayers have an interest, which the Council is bound to protect and further.

The cost of the metallic filament lamp, or its undoubted illuminating qualities, does not enter into, or is it pertinent to such a discussion, as it is far below the cost of a gas lamp of equal illuminating power. The $1.25 excess charge for its use represents therefore a question of maintenance, an item subject to considerable elasticity, varying with the efficiency of the management of the plant.

The Board naturally defends its own actions and [illegible] ratepayers' property and resents any inference that the latter is not receiving a fair deal from the electrical monopoly. The Gas Company is seeking to enlarge its field of business, and the resultant competition is a good one for the consumer. A combination inimical to the public is here impossible, and a constant betterment of service at the lowest rates insured the public. A fair compromise on lighting should be arrived at as there is sufficient scope in the Settlement for both systems. A complete monopoly by either the Gas or Electrical undertakings is undesirable, especially the latter, for the tendency of all official monopolies is towards impairment of service.

PHILIPPINE CIGAR SHIPMENT

SHIPMENTS OF CIGARS TO THE U. S. OF AMERICA. DURING OCTOBER 1909.

Exporters.	*Cases.*	*Kilos.*
Messrs. Castle Bros.-Wolf & Sons	457	55,655
" Meerkamp & Co., (La Maria Cristina)	148	13,684
" Compañía Gral. de Tabacos	140	22,967
" Baer Senior & Co.'s Succrs. (La Yebana)	90	13,337
" Walter E. Olsen & Co.	73	10,439
" Philippine Co. Ltd. (La Comercial)	71	9,465
" Germann & Co. Ltd. (Helios)	32	3,833
" J. Sta. Marina, (La Insular)	18	2,196
" La Germinal	15	2,882
" Chion Yu Nam	13	1,728
" Haddix & Kings	10	1,657
" Perez Hermanos	10	1,529
" Katubusan	10	1,100
" W. H. Anderson & Co.	8	1,380
" Philippine Products Co.	5	833
" Macondray & Co.	5	544
" Connell Bros.	1	145
Mr. F. Kuttner	1	88½
TOTAL	1107	143,462½

In all for the month approximately 10,000,000 cigars making in all to date under free trade about 17,000,000 cigars.

SHIPMENTS OF CIGARS TO THE U. S. OF AMERICA. DURING NOVEMBER 1909

Exporters.	*Cases.*	*Kilos.*
Messrs. Compañía Gral. de Tabacos	304	36227
" Castle Bros.-Wolf & Sons	262	32069
" Baer Senior & Co.'s Succrs	129	19,853
" Walter E. Olsen & Co.	93	12,509
" Germann & Co., Ltd.	46	4,961½
" Meerkamp & Co.	46	3,590
" La Insular	34	3,249
" Philippine Co., Ltd.	33	4,822
" La Germinal	22	3,946
" Kuenzle & Streiff	16	2,397
" Chiong Yu Nam	14	2,348
" La Cibeles	6	708
" La Alejandria	4	590
" Manila Warehouse Co.	3	455
" Connell Bros.	1	163
" Sullivan & Francis	1	157
TOTAL	1014	128,044½

Approximately 10,000,000 for the month and 27,000,000 to date under provisions of the Payne Bill.

PHILIPPINE POLICY OF CONSERVATION OF NATURAL RESOURCES

No question of public policy within recent years has so attracted the attention of the great body of the American people as the "Conservation of the Natural Resources," which means first, the putting of the land, waters, timber and minerals of the nation to their best use for all the people, and, second, the assurance of a continuous supply for the future. It is only within the present decade, and almost within the past five years that public sentiment has recognized that the real prosperity of the United States rests primarily on its natural resources, and that present prosperity can not endure unless steps are taken for keeping up the fertility of the soil, providing for a regular and adequate supply of timber and minerals and protecting the water-rights on the public domain from ruinous exploitation. Practically all of the known mineral deposits and all of the agricultural land in the United States is in private ownership; consequently the government has laid principal stress upon the protection and proper use of the timber and water on what remains of the once vast public domain west of the Mississippi. Thus under the policies inaugurated by former President Roosevelt and continued by President Taft, forest reserves, or "National Forests," are maintained in areas which are unsuited for agriculture but well adapted for producing the timber which is so essential to the prosperity of the nation. In many of these public reserves are valuable sites for water power, and the people's interest in them is looked after by careful government regulation, so as to prevent their falling permanently into the hands of speculators or trusts.

Unfortunately, when the people of the United States first began to appreciate the value of their public resources, and the ruin that must inevitably follow their exhaustion, most of the timber land had passed into private ownership and had been exploited ruthlessly for present gain, without giving a thought to the future needs of the country. Consequently all the government can do in such cases is to try to induce private owners to handle their timber, water-power, and minerals in a more conservative manner, and to this end it assists them in adopting proper methods and shows them the increased profits which will ensue in the long run. Federal and state agricultural departments, bureaus of forestry, geological surveys, experiment stations, etc., all assist in this work; but the results, while encouraging, are by no means as good as would have been secured had a conservation policy been adopted when the country was younger. In spite of the publicly owned timber on the National Forests, by far the greater per cent of the timber of the United States is wholly outside of government control; and so all the people can do at present is to make the best of a rather bad situation and to put what timber is left to its best use.

Fortunately, the Philippines are much better situated, for most of the public land is under the control of the Insular Government and consequently it can take the necessary provisions to insure each national resource being put to its best use for all the people. Mineral deposits, and land suited for agriculture, is turned over to companies or private individuals under regulations which do not hamper the proper use or ownership of the land but also protect the people's rights. Non-mineral land, which is also unfit for agriculture but capable of producing good timber, is so administered as both to encourage the cutting and sale of mature timber, ready for the market and also to insure a perpetual supply for the future.

—*Bulletin Forestry Bureau.*

F. M. S. TIN OUTPUT, OCTOBER

	Piculs.
Belat	520
Bruang	219
Bruseh	220
Gopeng	605
Kanaboi	319
Kinta	530
Kuantan	60
Lahat	805
New Gopeng	190
Pahang Consolidated	1300
Rambutan	440
Redhills	142
Royal Johore	125
Salak South	241
Sempam	....
Serendah	607
Tekka	675
Tronoh	3826

FAR EASTERN COMPANY REPORTS

THE SIAM COMMERCIAL BANK, LTD.—The directors report showed a balance of Ticals 250,365 to the credit of profit and loss and their recommendation as to distribution was approved at the regular meeting as follows:

To reserve fund Tcs. 22,356.12; to special reserve Tcs. 75,000; dividend at 6% Tcs. 90,000; directors' fees Tcs. 6,310.25; bonus to staff Tcs. 5,211.15; remaining to carry forward Tcs. 51,487.48.

PERAK CULTIVATION COMPANY, LTD.—This company paid a final dividend of 20% making in all 27% for the year ended August 31st, 1909.

THE SIAMESE TRAMWAY COMPANY, LTD.—The net profit for the half year ended June 30th amounted to Ticals 30,460 which amount was considered about sufficient to cover depreciation for the term. No dividend was declared in consequence.

ANGLO-MALAY RUBBER COMPANY, LTD.—This company recently declared an interim dividend of 25% for 1909 making in all for the four years 93% return to the investors.

INCH KENNETH COMPANY.—This company declared a dividend of 5% and carried forward £500 after adding £2,500 to the reserve.

SUNGEI KAPAR RUBBER CO., LTD.—An interim dividend of 7.5% was declared in October.

THE PATALING RUBBER ESTATES SYNDICATE, LTD.—This company paid another interim dividend of 25% in November making to date 50% for the year 1909.

THE KINTA TIN MINES, LTD.—This company has paid another dividend of one shilling per share.

KLANANG PRODUCE COMPANY, LTD.—This company paid a dividend of 10% for the six months ended June 30th, 1909.

KALUMPONG RUBBER CO., LTD.—This company declared a dividend equal to 16% for the year ended August 31st, 1909.

PLANTERS' STORES AND AGENCY COMPANY, LTD.—This company paid a dividend of 12.5% for the year and carried forward £15,357.

THE PERAK SUGAR CULTIVATION COMPANY, LTD.—The balance to the credit of profit and loss for the year ended August 31st, 1909, amounted to Tls. 103,748.75 out of which a dividend equal to 20% was paid and the balance, with the exception of Tls. 6,302.87 carried forward, included Tls. 20,000 for estate development fund and the balance charged to depreciation of plant

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THE INTERNATIONAL COTTON MANUFACTURING CO., LTD.—The balance to the credit of profit and loss at the end of the year closed September 30th, 1909, amounted to Tls. 94,208.92 out of which a dividend of 10% was directed paid and the balance distributed as follows: written off furniture, plant, machinery, etc. Tls. 27,615 and carried forward Tls. 3,713.

THE EWO COTTON SPINNING AND WEAVING CO., LTD.—The profit for the year available for distribution amounted to Tls. 307,254 out of which a dividend of Tls. 11 per share was paid after placing Tls. 100,000 to equalization of dividend account, writing off depreciation and carrying forward Tls. 10,991.75

NIPPON YUSEN KAISHA.—For the half year ended a dividend of 10% was declared.

THE JAPAN-CHINA STEAMSHIP COMPANY.—The balance of Yen 268,944 to the credit of profit and loss was disposed of as follows:

A dividend of 5% per annum, bonuses Yen 10,000, reserve Yen 13,309, and a balance forward of Yen 43,075. The report covered the half year term ended September 30th, 1909.

THE CHINESE ENGINEERING AND MINING COMPANY, LIMITED.—The following accounts were presented at the annual meeting held in London on October 27th, 1909, and covering the year ended February 28th, 1909.

The net result of the year's transaction shows a balance to the credit of Profit and Loss Account of £204,868 made up as follows:

Net Profit, after providing for all charges in China		£244,000
Add Balance brought forward from last year	£ 3,929	
Cross receipts in London	968	
		4,897
Total		£248,897
Deduct Expenditure in Europe, Salaries, Stores, etc.	£ 7,023	
Debentures, Interest	23,988	
Debentures, Redemption	10,000	
Directors' Fees	3,018	
		44,029
Leaving a net balance of		£204,868

Which the Directors recommend should be appropriated as follows:—

In placing to Reserve for Depreciation (making a total reserve of £215,000)	£ 40,000
In paying a final dividend 1s. 6d. per share (free of tax) payable Nov. 2, 1909	75,000
Making a dividend of 15 per cent for the year with the interim dividend of 1s. 6d. per share paid on May 1, 1909	75,000
Directors' percentage on profits in accordance with the Articles of Association	6,094
Income tax	7,339
And carrying forward	1,435
	£204,868

The following is the report of the meeting which was held at Winchester House, Old Broad-street, E. C., Mr. W. F. Turner presiding. The Secretary (Mr. Alf. W. Berry) having read the notice of meeting and the auditors' report to the shareholders.

The Chairman said: You will, I think, agree that the results obtained during the year are satisfactory, especially in view of the fact that they have been achieved under unfavorable conditions of trade in China. The gross profit shown in the profit and loss account, £243,999, represents an increase in round figures of £20,000 over the preceding year. After the usual deductions, the available net profit of the year is £160,938, which is carried to the profit and loss account in the balance-sheet. The directors are glad to have the opportunity of increasing the amount put to reserve this year to £40,000 the same amount as was set aside two years ago. An interim dividend of 1s. 6d. per share was paid on May 1 last, amounting to £75,000. We propose to pay on Nov. 2 a further dividend of the same amount, free of income tax, making 15 per cent. for the year, and, after deducting the directors' percentage, there will be a balance of £1,435 to carry forward to the next year. In our report for last year it was stated that for some time a divergence of view had existed between the Chinese Government and the board of directors on the subject of the rights of the company in the Kaiping Basin, and that negotiations were proceeding with a view to arriving at an amicable settlement. These negotiations have not yet reached any result. From time to time objections have been made by the Chinese Government to the company's title to its property, but during the whole period of the company's existence no effective steps have been taken by them to establish their contention. Some time ago, however, the Chinese authorities granted to a Chinese company a mining concession within the area of the Kaiping Basin, which this company claims to be its exclusive right, and the Chinese company is now developing and equipping a colliery at Lanchow, which is some six miles from our principal colliery at Tongshan. This action on the part of the Chinese authorities constitutes a grave infraction of the rights and interests of this company. The board of directors are fully satisfied that the company's title to its properties is valid, and they applied to the British Government for its support. The negotiations, which had been suspended for some considerable time owing to the absence of one of the highest of the Chinese officials, have been resumed quite recently, and they are being conducted on behalf of the company with the assistance and support of the British Government. Such being the case, it is not possible for us to discuss the matter here. It is possible that the negotiations may be of a somewhat protracted nature, but in the meantime you may be sure that they are receiving the closest attention on your behalf both here and in China, and your directors place the fullest reliance on the British Government in the matters at issue. We drew your attention, on the occasion of the last meeting, to the fact that the total capital expenditure since the formation of the company amounted to £585,894, and as you have seen from the balance-sheet this has been increased during the year by a further sum of £47,330, about three-fourths of which consists of further expenditure in connection with the new electrical installations. Our total capital expenditure now amounts to £633,224. It is stated in the report that the output of coal for the past year shows an increase of 108,500 tons. The sales for the year amounted to 1,149,336 tons, being an increase of 190,027 tons both the output and sale being the largest attained in the history of the company. In this connection the agent and general manager tells us, as a result of the experience of the year, and of further investigation made by him, that he estimates the output capacity on a conservative basis as follows:—Taking 334 working days to the year, the output at Tongshan would be 2,500 tons per day, or 835,000 tons; at the north-west shaft, 500 tons per day, or 167,000 tons; and at Linsi, 2,800 tons per day, or 935,200 tons, making a grand total of 1,937,200 tons per annum, or 5,800 tons per day. In round figures, we may safely call it 6,000 tons per day or 2,000,000 tons per annum. Our stock of coal and coke on Feb. 28 last amounted to 108,663 tons, as compared with 98,697 tons at the same date in the preceding year. At the present time the stock has risen to 200,000 tons, as compared with about 150,000 tons at this period last year. Although this is a higher stock than usual, it is not really excessive, being distributed over places as far distant as Tongshan, Ching Wang Tao, Tongku, Tientsin, Shanghai and Hongkong, not to mention others. At the last meeting we gave you some figures as to the estimated reserves of coal within certain limits at our three mines, which amounted to no less than 39,000,000 tons. As regards the coal exposed or actually in sight in the mines at Feb. 28 last, according to the engineer's report it was, in round figures, as follows:—Tongshan, 5,346,000 tons; northwest shaft, 272,000 tons; and Linsi, 3,429,000 tons, making a grand total of 9,047,000 tons, which is equal to about eight years' supply on the basis of the sales of the past year. During the year a scheme of afforestation of a portion of the company's lands at Tongshan and Linsi has been initiated, with a view to providing the company with its own supply of pit-wood. As regards the immediate future, we are not in a position to speak definitely. We are advised that some revival of business was expected during the present autumn, but that

there was nothing to warrant optimistic views as to the return of general prosperity in North China. Want of money is said to be the one main feature of the situation, and while this continues the local trades and industries, on which our sales in North China largely depend, are stagnant. It is to be borne in mind also that coal is still very little used in China for domestic purposes, and that any development in this direction is naturally checked by adverse conditions in trade. Persistent efforts are being made by the management to encourage and increase the use of coal for domestic purposes by the introduction of suitable stoves, and considerable progress has been made in this direction. The sales from March 1 last to October 9 amounted to 783,000 tons, being an increase of almost exactly 100,000 tons over the sales for the corresponding period of the previous year, whilst the proceeds showed an increase of over $290,000. But against this we have to set the fact that, owing to good crops, there will be an unusually large supply of native fuel this season, which may seriously affect our sales for the remainder of the year. We have just entered on the three months which should be the best in the year. We shall see to what extent they are affected by the competition of native fuel. I now beg to move: "That the directors' report and accounts be and they are hereby received and adopted and that a further dividend be declared of 1s. 6d. per share, making 15 per cent. for the year, free of income tax, payable on Nov. 2 next," and I will ask Sir Hubert Jerningham to second that.

Sir Hubert E. H. Jerningham, K.C.M.G., seconded the motion which was carried unanimously. The appointment of Sir Hubert Jerningham as a director was confirmed. The retiring directors Messrs. G. de Laveleye, G. T. Symons. W. F. Turner, and G. P. Walford, were re-elected.

Mr. J. R. Michael, in proposing the reappointment of Messrs. Annan, Dexter and Co. as auditors of the company, said the report and accounts submitted had no doubt been received by the shareholders with very much satisfaction, the more so because of the very serious depression which had prevailed in the general trade and in shipping in the Far East, and which had been very persistent. They could only hope that in that respect they were now turning the corner. Great credit was undoubtedly due to the board of directors and to the staff of the company for having presented such a satisfactory report in respect of the past year's operations.

The motion was unanimously agreed to, and the proceedings terminated.

THE KUALA LUMPUR RUBBER, CO., LTD.—This company pays 20% dividend, places £5,000 in the reserve and carries forward £3,853.

THE CANTON INSURANCE OFFICE, LTD.—The profits for the year amounted to $294,300.59, of which the sum of $194,300.59 was carried to underwriting suspense account and $100,000 to pay a dividend of $10 a share.

THE HONGKONG AND CHINA GAS COMPANY LTD.—This company has declared a dividend of 10 shillings a share.

THE STEAM LAUNDRY CO., LTD.—This company paid a dividend of 8% and carried forward $62.94 after writing off for depreciation in plant, $1,910.

THE CHINA LIGHT AND POWER COMPANY, LTD.—The credit to profit and loss amounted to $446,483 of which $400,000 was placed in the reserve and the balance carried forward. The chairman announced cash in hand of $687,497, including the balance left from the sale of the Canton franchise and plant.

CONTRACTING NEWS

Messrs. Riley Hargreaves & Co., Ltd., of Singapore, have secured the contract for making alterations to the Cape Ricardo lighthouse and to instal a new second order triple flashing apparatus and lantern.

ELECTRIC LAMPS.—Municipal Electricity Works, Shanghai, 32,950 lamps—Contract awarded as follows:

(*a*) 9,700 *Carbon Filament Lamps*:—

Messrs. Brighten, Malcolm & Co. 'Cryselco' 4,850 lamps £132.0.0.

The Shanghai Elect. & Asbestos Co., Ltd., 'Robertson' 4,850 lamps £131.10s.

(*b*) 23,250 *Metallic Filament Lamps*:—

Messrs. Brighten, Malcolm & Co. 'Cryselco' 11,625 lamps £1,336.14.3.

The Shanghai Elect. & Asbestos Co., Ltd., 'Osram' 11,625 lamps £1,472.10s.

The remaining tenders are as follows:

(*a*) 9,700 CARBON FILAMENT LAMPS.

Name	*Make*	*Delivery Weeks*	*Price.*
L. Murat	Paris	10	£161
Andersen, Meyer & Co.	B. T. H.	12	197
Scott, Harding & Co.	Austrian.	14	215
Alois Schweiger & Co., Ltd.	Kremenzky	18	222
Melchers & Co.	Korlher Speller & Co.	16	223
Siemssen & Co.	Siemens & Halske	12	225
Arnhold, Karberg & Co.	A.E.G.	10	240
Innis & Riddle	Laidler Ritchie	16	241
Dodwell & Co., Ltd	Ediswan.	10	242
W. Klose & Co.	Phoebus	15	246
Andersen, Meyer & Co.	G.E.C. (Tokio)	—	247
Reiss & Co.	Ediswan	14	254
Andersen, Meyer & Co.	G.E.C.	15	259
Von During, Wibel & Co.	Vickers Sons & Maxim	14	270
Shewan, Tomes & Co.	Brit. Westinghouse Co.	—	271
Jardine, Matheson & Co., Ltd.	Sunbeam	12-14	275
do	Robertson	11-12	276
Westphal, King & Ramsay, Ltd.	Robertson	13	283
Shanghai Dock & Eng. Co., Ltd.	Ediswan	10	284
Sheldon, Bakels & Co.	Robertson	10-12	285
Takata & Co.	Robertson	14	287
Samuel, MacGregor & Co., Ltd.	Sunbeam	4 f.o.b.	286
Scott, Harding & Co.	Cryselco	4 f.o.b.	303
Dickeson, Jones & Co.	Austrian	26	306
Siemens Schuckertwerke	Cryselco	18	326
Shanghai Machine Co.	Cryselco	15	328
Mitsui Bussan Kaisha	Japanese	10	348

(*b*) 23,250 METALLIC FILAMENT LAMPS

Name	*Make*	*Delivery Weeks*	*Price.*
Andersen, Meyer & Co.	G.E.C.	15	£2,061
Siemens Schuckertwerke	Tantalum	18	2,081
L. Murat	Paris	10	2,402
Westphal, King & Ramsay	Phillips	17	2,490
Dodwell & Co., Ltd.	Tantalum	16	2,541
Alois Schweiger & Co., Ltd.	Kremenzky	22	2,541
Siemssen & Co.	Felten & Guilleaume	10-26	2,571
Melchers & Co.	J. Pintszch	17	2,593
Arnhold, Karberg & Co.	A.E.G.	12	2,643
Scott, Harding & Co.	Tantalum	6 f.o.b.	2,682
do.	Wolfram	14	2,808
Shewan, Tomes & Co.	Brit. Westinghouse Co.	—	2,883
Innis & Riddle	"Z" & Co.	26	2,937
Andersen, Meyer & Co.	Deutsche Gasgluhlicht Actiengesellschaft	—	3,018
Jardine, Matheson & Co., Ltd.	German Gas Light Co.	11-12	3,044
Shanghai Dock & Eng. Co., Ltd.	Tantalum	14	3,050
Sheldon, Bakels & Co.	Osram	14	3,084
Jardine, Matheson & Co., Ltd.	Osram	15-16	3,139
Takata & Co.	Osram	14	3,167
W. Klose & Co.	Osram	12	3,183
Westphal, King & Ramsay, Ltd.	Osram	17	3,193
Pinfold & Co.	Monowatt	25	3,205
Evans & Co.	Osram	17	3,214
Takata & Co.	Osram	16	3,219
Von During, Wibel & Co.	Vickers Sons & Maxim	14	3,299
Samuel, MacGregor & Co., Ltd.	Sunbeam	12 f.o.b.	3,507
Dickeson, Jones & Co.	Austrian	26	3,564
Shanghai Machine Co.	Cryselco	15-21	3,678
Reiss & Co.	Ediswan	25	3,883

COAL—F. M. S. RAILWAYS—MINIMUM 1700 TONS MONTHLY.—Contract secured by Messrs. F. W. Heilger & Co. of Calcutta for 1910.

STEEL BARS FOR REINFORCED CONSTRUCTION.—Shanghai Municipality.—16,000 pounds. Awarded Yao Sing-Kee, Tls. 5 per 100 pounds. The other tenderer was Mr. A. T. J. Pike, Tls. 6 per 100 pounds.

RAILWAY SUPPLIES.—Minister Public Works, Siam.—Tenders invited for supply of two tank locomotives, five rail wagons, 12 ballast wagons, all of meter gauge.

ELECTRIC TRAMWAY SUPPLIES—OSAKA MUNICIPALITY.—Tenders invited for supply of material and rolling stock.

RAILWAY CONSTRUCTION TIMBER.—Imperial Chinese Tientsin-Pukow Railway (Southern Section) Indent 72. Tenders invited not later than December 21st, 1909, delivery, of

150,000 Wooden sleepers, each 8 feet by 9 inches by 5 inches.
200 Crossing timbers, each 9 feet by 9 inches by 5 inches.
200 Crossing timbers, each 10 feet by 9 inches by 5 inches.
200 Crossing timbers, each 11 feet by 9 inches by 5 inches.
200 Crossing timbers, each 12 feet by 9 inches by 5 inches.
200 Crossing timbers, each 13 feet by 9 inches by 5 inches.
400 Crossing timbers, each 14 feet by 9 inches by 5 inches.
200 Crossing timbers, each 17 feet by 9 inches by 5 inches.
5,000 Bridge ties, each 10 feet by 9 inches by 6 inches.

Delivery April 31st, 1910.—Indent 76:—

188,000 Wooden sleepers, each 8 feet by 9 inches by 5 inches.
3,400 Bridge ties, each 10 feet by 9 inches by 6 inches..

Opened December 21st, 1909.—To be delivered June 30th, 1910. Bids to be addressed The Managing Director.

GALVANIZED AND CORRUGATED IRON ROOFING—Municipality of Shanghai.—270 sheets. Messrs. A. R. Burkhill & Sons were awarded the Contract, Price Tls. 7.50 a picul. The other bidders were Messrs. Jardine, Matheson & Co., Ltd., Tls. 7.50 per picul and Messrs. Andersen, Meyer & Co., Tls. 7.80 a picul.

HOSPITAL KITCHEN EQUIPMENT.—Philippine Bureau of Supply—For new General Hospital, Manila. Bids opened December 29th, 1909.

CAST IRON PIPES FOR WATER SUPPLY.—Bangkok Sanitary Department. No date given.

PROPOSALS ROOFING TILES.—Constructing Q. M. Fort Mills, Corregidor, 200,000. Bids to be opened January 14th, 1910.

PROPOSALS FOR COAL:—Headquarters Philippines Division, Office of Chief Quartermaster, Manila, December 13th, 1909. Sealed proposals, in triplicate, subject to usual conditions, for furnishing approximately 65,000 tons of coal to the Quartermaster Department U. S. Army, during the Fiscal Year 1911, will be received here until 10:00 a. m. May 16th, 1910, and then opened. Information and blank forms furnished on application. F. G. Hodgson, Deputy Quartermaster General, U. S. A., Chief Quartermaster.

FAR EASTERN RAILWAY NEWS

SUMATRA RAILWAYS.—A report on the development of Sumatra contains recommendations for the construction of an extensive system of railways designed to tap the rich agricultural and mineral lands. It is proposed to expend the sum of 62,000,000 guilders covering a period of ten years active construction. It appears that the country is sparsely settled and that it will be necessary to import labor in order to make the railway building campaign a success.

JAPAN'S RAILWAY REVENUE.—The total mileage under the control of the Railway Board according to the official report covering the month of September was 4,569 miles and the total receipts from all sources for the month were yen 6,703,500 or yen 48 per mile per day. This is a falling off compared with the corresponding month of last year of 83,396 and indeed during the six months, including September, the falling off in receipts amounted to yen 726,660 and the Board anticipates a falling off of at least a million during the present year. The passenger receipts for the month amounted to yen 3,716,-410, an increase of yen 98,850, while the freight receipts amounted to yen 2,987,090, a decrease of yen 182,746 as compared with September last year. The traffic mileage of Japan's Railways has increased from 2,768 in 1897 to 4,569 at the date of the September report.

TONKIN-YUNNANFU RAILWAY EXTENSION.—The completion of the French Railway to Yunnanfu has stimulated interest in the extension from Yunnanfu to Luchow, Szechuan. This proposed line has been surveyed by way of Milong, Khuchingfu, Chanyichow and on via Hsuanweichow Yuning-hsien to Luchow. Should this road be extended it would give an outlet to the products of Szechuan by way of Haiphing and would no doubt affect the Shanghai trade via the Yangtsze. However, the construction of this extension presents one of the most difficult problems, without reference to the expense which would be enormous. It would pass through a mountainous country and at some points with altitudes over 8,000 feet. It would require much tunneling and cuttings. It is conceded, however, that the construction of the railway would bring large returns on investment. The outlay and the success of the work of construction of such a line would depend in a large measure on the co-operation given by the natives along the line of survey.

JAPANESE GOVERNMENT RAILWAY WORKS.—It has been announced officially that the Railway Board has in view the establishment of extensive locomotive and car building and repair shops to cost in the vicinity of yen 2,000,000 after the year 1913 in order to cope with the demand for railway supplies to cover the extensive operations in railway building contemplated in the new program to commence that year.

MANCHURIAN RAILWAY CONSTRUCTION.—The latest report from the progress made on the Antung Mukden reconstruction is to the effect that a section of about 25 miles connecting Antung and Shihchaotic was to have been opened for traffic by November 20th. Offices for the purchase of land and crops from the natives along the right of way have been established and the work of securing the lands has met with a minimum of opposition. It is not believed that much will be accomplished until the spring excepting pressing the work of tunneling and cuttings.

The construction of the Kirin-Changchun line is expected to begin in the spring. All the necessary arrangements are now being perfected so that unless some unforeseen difficulties present themselves there will be no further postponement. The doubling of the entire line of the South Manchuria Railway will soon be completed. Much of this work where it is most needed to carry the heavy traffic is now finished.

PEKING-KALGAN EXTENSION.—With the completion of the Peking-Kalgan line the prospects for great activity in invading Mongolia with a view to opening up the country to settlement grows brighter. Last year the route covering a distance of over 260 miles connecting Kalgan with Ho-k'ou on the Yellow River was surveyed, and now that the line to Kalgan makes the construction more feasible work will commence at once. It is the purpose of the government to finance it with the surplus earnings of the Imperial Railways of North China and to make it a purely Chinese road as is the Peking-Kalgan. It will take probably six or seven years to complete.

KUALA LUMPUR RAILWAY STATION.—The *Malay Mail* describes the new station being built by the F. M. S. Railways at this point.

The new station buildings, with platforms, will cover about 140,000 square feet or 3½ acres when complete, the approximate cost being nearly $250,000. They will consist of the following:—A large station building facing on Damansara Road occupying the site of the present station and a good deal of additional space. Inside the station will be three platforms, one each side and an island platform, the whole covered by a roof. On the further side will be no buildings but only the outer wall of the station supporting one side of the roof. This is the wall which has recently arisen bleak and menacing from a welter of bricks and mortar on the side of the station furthest from Damansara Road. Two subways, one for passengers and one for luggage, will connect the different platforms.

CHANGSHA-CHU-CHEO RAILWAY.—This section is now being constructed from Changsha and a distance of two miles is reported completed. The station and yard grounds are near the New River at Changsha. On the Chu-cheo end operations have likewise begun and there is prospect for the early completion on this section which will ultimately become a part of the Canton-Hankow.

TIENTSIN-PUKOW (NORTHERN SECTION).—The Hon. Chu Cheng-chi has been appointed Acting Managing Director of this section until the vacancy following the scandal is filled permanently.

SZECHUEN-HANKOW RAILWAY.—The work of construction on the Ichang-Wanhsien section of this line was commenced on November 8th. A number of students from the Railway College at Chengtu have been engaged to superintend the work.

THE TIENTSIN TERMINUS OF THE TIENTSIN-PUKOW.—It has been decided, according to the latest advices, to locate the station near Hsiku at the extreme northern end of the city. This gives a station at the South Gate as well as the terminal and a bridge across the river will give easy connection with the Peking Railway from the site selected.

SOUTH MANCHURIA RAILWAY'S HALF YEAR.—The passenger and freight receipts of the S. M. railway for the past six months ending September last, amounted to Yen 5,850,177, showing an increase of Yen 1,477.42 over the figures for the corresponding period of last year. The six months' receipts per mile per day for the main line are returned as Yen 61.73 and that for the Antung-Mukden line Yen 5.54; increases of Yen 17.61 and seven sen respectively on the last figures.

MIRUNO-NOJIRI RAILWAY.—This section, five miles in length, and part of the Central Western Railway of Japan, was opened to traffic in September.

CANTON-HANKOW CONSTRUCTION.—The Liangtan-Pikiangkou section of this line was opened for traffic in October. This section adds six miles to the 45 miles operating between the Canton terminus and Liangtan. Two trains daily each way are scheduled.

KOREAN RAILWAYS.—The transfer of the Korean lines to the control of the Japanese Railway Board has been the subject of much discussion, but there can be no doubt of the purpose of the Japanese authorities to press the campaign of railway construction proposed for the next few years. The estimate for the survey and preliminary expenses entailed on the proposed Seoul Wonson and Ho-Nam lines which will cover the fiscal year of 1910, amounts to yen 1,000,000 each. It is understood that some old surveys prepared by earlier promoters will be followed in a large measure in regard to the Ho-Nam line.

INDIAN RAILWAYS.—The report for the year ended June 30th gives a total mileage of railways in India of 30,500 miles and about 3,000 additional miles under construction.

NEW HUPEH RAILWAY PROPOSED.—The construction of a line 250 kilometers in length connecting Siang yang fu on the Han River with Kuang-shui on the Peking-Hankow Railway has been proposed by the Viceroy of the Hukuang Provinces. The province of Hupeh pledges half the amount of the capital and the Peking-Hankow the balance.

THE CHIN-HSU RAILWAY.—The construction has commenced on this line which, when complete, will connect Hsuchowfu on the Tientsin-Pukow with Kwachow, a point opposite Chekiang on the Shanghai-Nanking line. This line is being built by Chinese capital. The line will follow the Grand Canal from Kwachow to Tsingkiangpu.

SOUTH MANCHURIA SLEEPING CARS.—Two sleeping cars built after the Pullman pattern but with Wagon-Lits appointments and sleeping arrangements will soon be turned out at the South Manchuria Railway Shops at Dairen. Each car will accommodate 30 passengers.

JAPAN'S TRANS-EMPIRE LINE COMPLETED.—On November 21st the formal opening of the Kagoshima line was celebrated and thus was formally opened to traffic a trunk line crossing the Empire a distance of 1,750 miles, the construction of which was begun in 1899. This trunk connects Kushiro in Hokkaido and Kogoshima in Kyushu. The Kagoshima line, the completion of which concluded this important trunk, connected that city with Yashima. The time between the termini is placed at about five days and from Tokyo to the Southern terminus, 48 hours. A correspondent of the *Japan Times* says:

"Japan can now, if need be, assemble three divisions of her armed forces at her southernmost point within 12 hours, and treble that number with additions from Tokyo with 48 hours. To say nothing of the strengthening of the national defence of Japan, therefore, we may view this as a great progress made in Japan's railway enterprise not necessarily for military purposes, but more so by enhanced facilities for trade and transportation."

SIBERIA'S NEW TRUNK RAILWAY.—The survey of the new line connecting Chita with Khabarovsk is being pushed rapidly. When completed and connected up with other central and western lines projected will give Siberia a valuable network of railways and double connection with Vladivostok.

NANKING-WUHU RAILWAY.—The Kiangsu council has decided to raise the funds for the construction of this line from among the merchants and gentry of the different towns affected in Kiangsu and Anhui.

JUNCTION OF THE SHANGHAI-NANKING AND KASHING RAILWAYS APPROVED. The Ministry of Posts and Communications has approved the junction of the Shanghai-Nanking and the Shanghai-Kashing railways. It has been decided that the junction should begin at Chenju and pass Chiangch'iao, Peihsingching and Tsaohoching to Meichialung.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

Tokyo Electric Lighting.—The city of Tokyo has two competing companies engaged in supplying electric lighting to the capital. The Tokyo Electric Railway Company recently applied for permission to supply light in the Fukugawa district and the result has been a great reduction in the rates as against those of the Tokyo Electric Light Company's. It is believed, however, that when the lines in the suburbs are completed, the railway company will need all its surplus power for traction.

Bombay Wireless.—A station was opened in October at this point for communicating with the P. & O. steamers with a radius of 300 miles.

Kinugawa Hydro-Electric Project.—The failure of this company to secure a contract from the Tokyo Railway Company for the supply of power has had the effect of discouraging the promoters of the much talked of enterprise. Those connected with the project hoped to secure a tentative contract in order to brighten up the prospectus and induce the investment of foreign capital which has been rather timid.

It is now believed that every effort will be made to induce local Japanese capital to take up the stock of the company and otherwise finance it.

Rangoon Motor Fire Engine.—This modern fire fighter was purchased from Messrs. Merryweather & Sons of London. It has a speed of 30 miles an hour and a pumping capacity of 400 gallons per minute. It is especially adapted for climbing heavy gradients.

Mukden Electric Works.—Arrangements have been made with the Chinese Electric Light Company to supply light for the streets connecting the walled city with the park.

Japanese Electrical Enterprises.—The Belgian Consular reports give the information that there are 177 firms and companies engaged in electrical enterprises in Japan representing a force of 300,000 kilowatts.

Some 210,000 houses are lighted by electricity, being provided with 800,000 incandescent lamps and 910 arc lamps.

The most important company is the Tokyo Electric Light Company, which at present has three power stations and nine sub-stations for transformation; this company is about to enlarge its works to the extent of four generating machines and 47 transformers, and has under consideration the erection of new power stations and sub-stations for transformation, etc. Several other companies are also about to undertake improvements and extensions of a similar nature, whilst others newly constituted have not yet completed their installations.

The number of officially recognized electric tramway companies is 60; of these, however, only some 20 are as yet working, the installation being generally slow for lack of capital.

Japanese Railway Board's Activity.—The electricity needed on the Yamanote line amounts to 2,000 H. P., the half of which will be supplied by the Okubo Power Station while the other half will be supplied by the Tokyo Electric Railway Co. However, in view of the necessity of supplying power by its own power station it is said to have decided to establish an electric power station on a big scale capable of generating 6,000 or 8,000 H. P. in the vicinity of the River Rokugo. For this purpose, the Board has put 2,700,000 *yen* on the list of the next year's budget.

Formosan Electric Installations.—The cities of Tainan and Taikow are to be supplied with light and power from an electric generating plant being installed at Takow.

Linking the British Empire by Wireless.—In his scheme to establish a line of stations linking up the British Empire, Mr. Marconi proposes the central station in South Africa and by way of Bombay, Cairo and Malta connect up the Far Eastern Station with London. A service between Singapore and China would include a link 1,200 miles in length to Hongkong.

Japanese-Hawaiian Wireless.—Experiments are being made for the purpose of extending connections between the islands but up to a recent date little success has been reported. The Japanese are, however, sanguine of success. Unintelligible sounds have been transmitted for over 3,000 miles, but that is the limit of accomplishment.

Yamate Electric Railway.—This railway was opened to the public this month. The line connects Shinagawa and Akabane and power is secured from the Tokyo Railway Company. The distance is 20 miles and is divided into about 10 sections. The fare will be about 3 sen a section or 20 sen for the entire distance.

The Shenanogawa Hydro-Electric Project.—The prospectus of this company proposes to develop 200,000 h. p. at the rapids of Otaki on the Shinano River; 130,000 h. p. at Tsukioka and 4,000 h. p. at Shikuma Pass on the same river. It is also proposed to convey the power to Tokyo by one of three routes involving 130, 102 and 122 miles respectively. The project is reported to be financed by New York capital. One economic feature of the construction is the transportation of supplies to a point near the central station via the Chikumagawa River.

Japanese-American Electric Amalgamation.—The negotiations between the General Electric Company and the Shibaura Engineering Works with a view to amalgamation of interests in Japan is reported to have taken a favorable turn according to a cable received by the Mitsui Company, and the Japan Financial and Economic Monthly announces an amicable settlement of all disputes.

The Oji Electric Railway Co.—A project for the purpose of establishing lines to the North of Tokyo is being promoted by Tokyo capitalists. The capital necessary for the purpose will exceed yen 2,000,000. Permission has been granted for survey and construction by the central government.

Dairen Electric Railway.—This system under the control of the South Manchurian Railway opened September 25th, and from official reports it is learned that during the first four days 21,[illegible]29 passengers were carried and yen 2,878 represented the revenue for that period. The conductors and motormen are Chinese.

Saigon Airship Society.—This association expects to receive its first Bleriot airship by the middle of January. The society is considering a voyage from Saigon and Paris in one of these monoplanes.

Korean Telegraphs and Telephones.—The entire length of telegraph lines now in operation in Korea measure approximately 7,000 miles while the telephone wiring exceeds 4,500 miles. Most of these lines have been built and put in operation since Japanese occupation.

Pacific Mail Wireless.—The S. S. Korea equipped with a two kilowatt and a five kilowatt wireless apparatus on a test trip made a record of 2,725 miles at night and 625 in the daytime during her last trip outward from San Francisco.

Portable Telephone Service.—The South Manchuria Railway has installed this apparatus on several emergency trains.

Russian Wireless Invention.—A Russian student has invented a wireless apparatus that is reported to be non-tappable and it is understood that the War Department has recommended the installation of a system connecting Vladivostok and the Russian capital by a line of stations.

Pakhoi Electric Light Installation.—The municipality has advertised for tenders for the supply and installation of a system of from 500 to 1000 electric lamps.

Dalny-Chefoo Cable.—The following information in regard to this cable which was opened for service July 20th, 1909, is given by Consul Williamson of Dalny:

This cable is about 88½ nautical miles long, of which Japan owns approximately 81 and China 7½ nautical miles. The rate for messages to Chefoo has been reduced from 48 cents per European word, via Sasebo, Nagasaki, and Shanghai, or 13½ cents per word under last year's agreement with China by which messages can be sent overland via Newchwang to Chefoo, to 8 cents per European word over the new cable. A corresponding reduction is made for messages in Japanese "kana" with seven kana characters equalling one European word. This rate is for messages from any station in South Manchuria to the Japanese post-office in Chefoo. Although these messages must pass over some 7 miles of Chinese lines, I understand they are switched to the Japanese post-office direct without passing through Chinese hands. The Chefoo Japanese post-office divides its receipts from this source with the Chinese office. It is said that this new cable cost Japan $100,000 gold for her portion.

Wireless for Hongkong.—Messrs. Rosencrantz & Keegan representing the United Wireless Telegraph Company have made application for permission to install a wireless station at Hongkong under an exclusive franchise extending over a period of 25 years. They announce as their purpose the installation of stations in Manila, Singapore and Bangkok. They also agree to make the installation at Hongkong equal to the New York City wireless station.

Municipalization of Tokyo Electric Railway System.—The municipality of Tokyo and the company have been carrying on negotiations for the purchase of the franchise and plant by the city but apparently without success. The municipality offered yen 50,000,000 while the company would not consider an amount less than 65,000,000 yen.

Philippine Wireless.—The stations at Jolo, Zamboanga and Malabang are operating satisfactorily and two additional stations are to be installed in the vicinity of Manila which will give communication with vessels many miles out from the San Bernardino Straits.

Taxing Tokyo Electric Light Company.—The municipality has concluded an agreement with the company whereby the latter reduces its charges 30% and pays 3% on the net revenues of the company, after all legal reserves are taken care of up to the sum of 2,000,000 yen in profits.

In excess of that amount up to three millions the tax will be 2.5% and above that amount 2%. These taxes will go into effect in three years and the Tokyo company will pay in lieu of taxes the sum of yen 60,000 for the first, yen 65,000 for the second and yen 70,000 for the third year intervening.

Odawara Electric Railway Extension.—It is proposed to extend the Odawara line

through Hakone to connect with the Government railway at Mishima for the purpose of attracting the tourist traffic to Hokone.

BUREAU OF HYDRO-ELECTRIC POWER.—Baron Goto has recommended the appropriation of yen 1,500,000 for the purpose of making investigations of hydro-electric projects throughout the empire under the direction of a new bureau in connection with the Electricity Department under the Railway Board.

THE ANGLO-JAPANESE HYDRO-ELECTRIC POWER COMPANY.—Of all the projects considered to provide power and light to Tokyo, this enterprise seems to have received the greatest encouragement from foreign investors. The British experts report most favorably on the enterprise and claim that the project is the best yet suggested. The original plans have been changed reducing the height of the retaining walls from 300 to 200 feet and locating the reservoir an additional distance of six miles from the capital.

PENANG TRAMWAYS.—This system carried 2,230,000 passengers during the last fiscal year.

PUBLIC WORKS, DOCKS, WHARVES, ETC.

SINGAPORE SEWAGE DISPOSAL.—The Committee appointed to inquire into the most desirable methods of disposal of sewage recommends the treatment of sewage by means of bacteria beds in preference to disposing of it in the sea in view of the excessive cost of latter. The committee also recommends negotiations with London experts with a view to securing their advice on a suitable scheme to meet local conditions.

KUALA LUMPUR WATERWORKS.—The dam at the new waterworks near Ampin is completed, says the *Malay Mail*, and in a few weeks' time the supply should be reaching Kuala Lumpur through the supplementary pipe line. This latter line will be retained after the distributing reservoir is completed for emergency in case the regular supply should be cut off in case of fire.

IPOH'S NEEDS.—A number of residents of Kinta have presented a petition to the High Commissioner, His Excellency Sir John Anderson, asking among many requirements for Ipoh that a harbor be provided at Lumut to accommodate large sea-going vessels and thus assist in the development of Perak generally. The petitioners directed attention to the fact that while Perak subscribed revenue to the amount of four millions, the expenditure did not exceed one and one-half millions. In addition to improving the harbor a request was made to build a railway connecting it with Ipoh.

KOREAN PUBLIC WORKS.—The following is a list of estimates for the next fiscal year submitted by the Civil Engineering Department of the Korean Home Office:

	Yen.
Highways	545,396
Highways	832,960
Repairs of roads and bridges	37,128
Dredging river at Seoul	36,420
Improvement of streets in Seoul	250,000
Public works in Seoul	30,600
Investigation of five great rivers	253,990
Investigation of public works	32,185
Investigation for construction of waterworks	5,790
Construction of waterworks at Chemulpo	326,815

All the above, with the exception of Highways yen 545,396; Public Works in Seoul, yen 30,600; investigation of Public Works 32,185; Investigation of Waterworks construction 5,790, and Construction of Chemulpo Waterworks, are new projects. The investigation of the five great rivers which will cost about yen 1,358,530 and cover a period of seven years refers to the Naktong, Yunsan, Keum, Han and Taitong. The investigation with reference to waterworks refers to projects at Taiku, Kunsan and Wonsan.

YOKOHAMA WATERWORKS.—The council of Yokohama recently made an allotment of yen 7,000,000 the greater portion of which will be expended in the enlargement of the city waterworks and a part will go to the Kanagawa Prefectural Exhibits Society in connection with the Anglo-Japanese Exhibition.

FILTER BEDS AT IPOH.—Messrs. Howarth, Erskine, Ltd., have secured the contract for the installation of a septic tank and filter bed at Ipoh according to the *Perak Pioneer*.

IMPROVEMENT OF THE PORT OF CALCUTTA.—Two schemes have been suggested for the betterment of this port by the Chief Engineer of the Public Works Department as follows:

(i) A scheme for the construction of two separate works, namely:—

		Rs.
(a)	A 600 feet break water opposite to the old Custom-house estimated to cost	2,72,345
(b)	A reinforced concrete jetty on the site of the present pier estimated to cost (without cranes)	1,54,000
	Total	4,26,345

or (ii) A scheme for the construction of these two works (break water and jetty) in combination, both being constructed at a suitable site to be selected. This scheme is estimated to cost Rs. 3,92,196 and is preferred by the Chief Engineer.

THE WHANGPOO CONSERVANCY.—After an interruption of over two months, work on the dredging was resumed the last of November. The contract was given the Chinese Company and the price is Tls. 0.225 per cubic yard.

PHILIPPINE GENERAL HOSPITAL AND MEDICAL SCHOOL.—The General Hospital which represents an investment of ₱750,000 is nearing completion and will be occupied as soon as the supplies and equipment are available. The medical school construction is progressing rapidly.

MANILA HARBOR AND PASIG RIVER IMPROVEMENTS.—In his report for the fiscal year ended June 30th, 1909, the Collector of Customs recommends the reduction of the size of the gap in the breakwater and the dredging of the harbor to a greater depth directly inside the breakwater; the completion of the river wall on the Pasig; a bridge over the river connecting the south side with Calle Rosario on the north and other improvements to facilitate river traffic and coastwise trade by better handling of cargo.

HOKKAIDO PUBLIC IMPROVEMENTS.—It is the purpose of the Japanese Government to expend during the next 20 years the sum of yen 50,000,000 in the improvement of rivers and harbors, bridges, roads, etc., in Hokkaido.

WHARVES FOR BANGKOK.—The Standard Oil Company is building a 45-foot wharf at Upper Paklat and the China Steam Navigation Company has placed orders for the construction of two additional wharves at Bangkok.

DAIREN HARBOR IMPROVEMENTS.—The 500 feet of the new East Breakwater provided for this year is now complete. When the breakwater is finished it will be 1200 feet long, and when the harbor is in shape there will be sufficient additional berthing space along this quay to accommodate at least 13 vessels of 5,000 tons each.

DREDGERS FOR THE JAPANESE GOVERNMENT.—The Uraga Dockyard has secured an order for the construction of two dredgers for the Departments of Home Affairs and Finance.

JAPANESE CONSULATE AT SHANGHAI.—The corner stone of the new consulate was laid last month at the site of the old consulate on the Whangpoo Road. This building will cost about yen 200,000. The main building will be three stories and constructed of brick and stone.

DRYDOCK FOR SHANGTUNG BAY.—The German Minister has asked permission to construct a large drydock in Shangtung Bay. So far as can be learned no action has been taken at Peking.

PORT SWETTENHAM IMPROVEMENTS.—Besides an allotment of $100,000 for the new wharf an additional $138,600 is proposed to be utilized in improving the facilities for loading and unloading cargo.

THE KLANG RIVER BRIDGE.—This bridge which spans the Klang River at Klang is the largest bridge in the F. M. S., says the *Perak Pioneer*.

It is of the Linville girder type and has four spans of 140 feet each and is 20 feet wide and cost two hundred and sixty thousand dollars. How well it has justified its construction is evident from the following remarks which occur in Mr. Scott Mason's report on that district for the year 1908.

"The erection of this bridge means an annual savings of hundreds of dollars to every estate on the north side of the river; there is a saving of about five cents on every bag of rice imported, and on every chest of rubber and a bag of copra or coffee exported."

MINDANAO PUBLIC WORKS.—The appropriations for the year 1910 include the expenditure of ₱54,000 for roads and bridges and ₱64,000 for wharves at Iligan and Zamboanga.

PORT OF CHINWANGTAO.—Mr. Hillier, Commissioner of Customs, says that the port of Chinwangtao has not developed as was predicted when it was opened, in spite of the fact that excellent advantages are afforded by the Chinwangtao Harbor Works, which were built at great expense by the Chinese Engineering and Mining Company. Since Chinwangtao was opened its status has not materially changed from that of a coal outlet and a winter jetty for the north of China.

ZAMBOANGA WATERWORKS.—The Board of Directors of the Zamboanga Water, Electric & Power Company reports the completion of the waterworks survey and has made a proposal to the legislative council to provide the city with pure water from a plant having a capacity of supplying 750,000 gallons daily and to maintain a reserve of 4,000,000 gallons. The company will secure its supply above any habitation passing it through filter beds with settling basin and reservoir at such an elevation as will give a static pressure of 100 pounds to the square inch.

PENANG WATER SUPPLY.—The plans recommended will cost about $2,500,000 to include a reservoir at the Waterfall Garden, a service reservoir at Ayer Etam and a main from the Waterfall Garden.

BOMBAY HARBORWORKS.—The policy of the Port Trust has resulted in making Bombay one of the cheapest ports in the world. The Prince's and Victoria wet docks and the Meriwether dry dock have been constructed, some miles of wharves have been built, many acres of swampy foreshore have been reclaimed, acres of warehouse accommodations for the storage of goods have been erected, and a considerable mileage of roadway has been laid, and, in addition, a vast number of improvements have been made in the lighting and general equipment of the port. All this has involved an expenditure of $8,000,000 says Consul Dennison.

The extensive works completed are being supplemented by others of even larger magnitude, which may be summarized as follows:

A wet dock with an area of 49.52 acres, a 3-mile length of quay, including the harbor wall, an entrance 100 feet wide, with sill at 35½ feet below mean high-water level. A new dry dock, opening off the wet dock, will be 1,000 feet in length, with an entrance 100 feet wide and with sill 33½ feet below high-water ordinary neap tides. The cost of these docks will be about $12,000,000.

The Port Trust Railway is a project of great importance, and will very much facilitate the handling of freight by providing direct connections between steamers' berths in the docks and the two trunk lines of railway running into Bombay, and should have the ultimate effect of cheapening the methods of handling exports.

The Mazagon-Sewri Reclamation will provide space for the grain, seeds, and cotton trades, and for a new store yard for the Great Indian Peninsular Railway. The total area which is being recovered is 622 acres, of which 554 acres are to be actually reclaimed from the sea, the balance being low-lying land which is to be raised for effective use. The whole area of the island of Bombay is only 14,342 acres, so that this reclamation will add very nearly 4½ per cent to the area of the city.

The remaining improvement is the moving of the bulk oil depot and the timber ponds to Sewri. This work is progressing rapidly and will include a site of 61 acres, a deep-water berth for the tank steamers, and a length of 11,000 feet of low pier for the pipe line from steamers to tanks.

These works, which are all in progress, and which are to be completed in two years, will double the dock accommodation of the port, provide a splendid graving dock, and shift the heavy traffic in cotton and other goods from the roads and streets to its proper place.

PHILIPPINE IRRIGATION.—The estimates submitted for the year 1910 amounted to over ₱1,200,000. This amount covers the Ambulangan-Dalin project, 67,500 acres, ₱800,000; Orion project, 2,250 acres, ₱37,000; Pototan project, 20,000 acres, ₱277,000; Barugo-Leyte project, ₱60,000; and the Polillo project, ₱5,000.

BANGKOK WATER SUPPLY.—The City Engineer, Bangkok Sanitary Department, has advertised for tenders for the supply of cast iron pipes and accessories for the city water-supply.

PEKING WATERWORKS COMPANY.—The announcement was made that this company would commence supplying water to the public on November 25th.

THE CANTON BUND.—The announcement is made of the completion of the Bund for a distance of a mile and one-half reaching the railway terminus of the Canton-Kowloon. This improvement is about 45 feet wide and is quite a relief to the inhabitants of this congested city. A T-shed wharf of reinforced steel construction, 60 feet wide and about 150 feet in length, has been completed by Messrs. Howarth, Erskine. Ltd., and will be used as the official landing.

CAUSEWAY BAY TYPHOON SHELTER.—The contractors having in hand the deepening of the bay announce that the contract will be completed by the end of the year. Over 1,000 laborers and 150 boats were employed daily on the work.

YAP WEATHER STATION.—The Philippines Weather Bureau will establish a station at Yap, Carolines.

SHIPBUILDING, MERCHANT MARINE AND FISHERIES

CHINA'S NAVIGATION EXPANSION.—The Board of Posts and Communications have recommended the appropriation of one million taels to be utilized in extending the transportation facilities in Chinese waters under the Chinese flag.

VLADIVOSTOK SHIPPING TRADE.—It is understood that the Russian Volunteer Fleet and the Osaka Shosen Kaisha have failed to come to an understanding in regard to rates and keen competition is anticipated from the beginning of the year 1910.

NEW JAPANESE TRAWLER.—The Kiyu Maru was launched from the Kubota Dockyard at Kanagawa in October and will be used by one of the largest fishery concerns in Otura for deep sea fishing. The vessel has a gross tonnage of 5,000, length 63 feet width 15 feet and draught 8 feet.

CABLESHIP FOR THE PHILIPPINE GOVERNMENT.—The steamer Manila, a vessel of 2,722 tons, has been purchased by the Bureau of Navigation for use as a cable ship to be used in laying new lines and repair work in the archipelago. The price paid was ₱165,000.

MOTOR SAMPAN AT HONGKONG.—The first attempt to utilize a motor in a sampan was successfully made at Hongkong the second of December. The vessel was built at the yard of Messrs. Ulderup & Schluter at Laichikok and is 32 feet in length, with beam 8 feet and depth 2.5 feet. The engines were supplied by Messrs. Fay and Bowen, New York. The trial covered a period of two hours making eight knots an hour during that period on 1.25 gallons kerosene per hour.

HONGKONG DOCKS BUSY.—The *South China Morning Post*, referring to the activity in repairing in the dockyards of Hongkong, says:

"Quite a little naval force is at Kowloon Docks at present. H. M. S. S. Hart, Virago, Taku and Fame are all there undergoing overhaul after their extended trip north. The Portuguese cruiser Rainha Amelia is also at the dock, and there might also be included in the count of "warships" the Chinese Revenue cruiser Likin. The docking of so many destroyers of the British navy has necessitated the re-opening of Cosmopolitan dock, where the H. A. L. steamer Ithaka is on the chocks. The other vessels at Kowloon (Hunghom) docks are the Haimun, Prominent, Kwongtung and Hilary, so that there seems to be an abundance of work in hand at present, though we are given to understand, that prices are very keenly cut in these strenuous days of competition. The Taikoo dock is also busy on the Kanchow, Anhui, Rajaburi, Tjiliwong and Canton, while the Naval Dock is occupied by H. M. S. Flora, the camber by H. M. S. Monmouth and other smaller vessels, and lying at her buoy waiting her turn is H. M. S. King Alfred. The smaller Chinese slips are also pretty fully occupied.

JAPAN'S NAVAL CONSTRUCTION.—Two large destroyers having a 1,150 tons displacement, 20,500 h. p. and speed of 33 knots each are being constructed at the Mitsu Bishi Shipbuilding and Engine Works, Nagasaki. They are to be fitted with turbine engines. These are reported to be 150 tons larger than any of the new destroyers being built for the British Navy. In addition to these vessels two of the newest type of Dreadnoughts will be added to the Japanese navy at an early date. One of these battleships having a displacement of 19,350 tons is being built at the Yokosuka Naval Dock and the other with a displacement of 19,800 built at the Kure Naval Docks will go into commission early next year. There are also two cruisers of modern construction to be added to the list.

KOREA COAST DEFENCE VESSELS.—Recently the Mihara Shipbuilding Dockyard at Osaka secured an order for the construction of 16 steamers from the Korean Government. These vessels will be used for coast patrol service and will be ready for delivery next September.

JAPANESE SUBMARINE INVENTION.—A young Japanese named Koda Seihichi is reported to have applied for a patent on an instrument which he claims will direct the movements of a fish torpedo or submarine boat without the services of an engineer. A test is said to be arranged off Shinagawa for the present month.

PEARLING GROUNDS IN SAGHALIEN.—Japanese fishermen report the discovery of large beds of pearl oysters on the southern coast and that the rare black pearls of the best quality are realized there in large quantities. There is also a yellow variety found that is believed to be very valuable.

MOTOR BOAT FOR WEST RIVER.—A shallow draft boat length 75 feet was delivered by the firm of Kwong Fook Cheung, Samshui-po, early this month. It is equipped with a 75 b. h. p. Gardner kerosene engine. Another boat of the same order has been ordered for the same run and two more for Canton and Pakhoi.

OSAKA SHOSEN KAISHA AND THE C. M. AND ST. P. RY. LINE.—Mr. G. H. Corse, jr., representative of this line, has concluded arrangements with Messrs. W. F. Stevenson & Co. of Manila to represent the line at that port and the Philippines. Headquarters for the Far East will be at Shanghai permanently.

PHILIPPINE COASTWISE RATES.—A committee of which the Collector of Customs is chairman has been appointed to make an investigation into the rates charged for freight and passengers in the coastwise carrying trade and to make recommendations as to advisable changes.

BANGKOK MOTOR BOAT RACES.—The motor boat has invaded Siam perhaps more effectually than any other part of the East. The use of this pleasure vessel is endorsed by the Royal Family. Her Majesty, the Queen of Siam, recently ordered a six cylinder Napier Chassis. On the 19th of the present month there will be a series of motor boat races and some idea of the various kind of motors may be gathered by the division of the competing boats into the following classes:

1. Unrestricted.
2. 6 cylinders the diameter not to exceed 130 millimeters
3. 6 cylinders the diameter not to exceed 115 millimeters, or
   4 cylinders the diameter not to exceed 130 millimeters
4. 4 cylinders the diameter not to exceed 115 millimeters
5. 4 cylinders the diameter not to exceed 102 millimeters
6. 4 cylinders the diameter not to exceed 81 millimeters, or
   2 cylinders the diameter not to exceed 115 millimeters
7. 2 cylinders the diameter not to exceed 81 millimeters, or
   1 cylinder the diameter not to exceed 115 millimeters

MILITARY FERRY CONTRACT AT MANILA.—Messrs. Poizat and Gray have been awarded the contract by the Chief Quartermaster for handling passengers between Manila, Corregidor, El Fraile and Carabao Islands.

The steamer will leave daily from Magallanes landing at 7 a. m. for Corregidor calling at El Fraile and Carabao Islands on Monday, Wednesday and Friday and at Sisiman and Mariveles on Tuesday, Thursday, Saturday, and Sunday.

TONKIN FISHERIES.—During the first six months of 1909 the export of fish from Tonkin amounted to 1,449,329 tons, of which 1,386,288 was shipped from Cac-ba alone for China. Cac-ba is an island situated at the entrance to the port of Haiphong, and the industry is practically in the hands of Chinese.

PHILIPPINE REVENUE CUTTERS.—The Collector of Customs has renewed his recommendation for the purchase of two fast revenue cutters to cost about ₱40,000 to be used in preventing smuggling in the southern islands.

CARNIVAL RATES FROM HONGKONG TO MANILA.—The China-Manila line has announced a cut rate of ₱50 round trip from Hongkong to Manila during the Carnival in February.

MINING, MINERALS AND THE METAL TRADE

SARAWAK GOVERNMENT COLLIERIES.—Arrangements have been made by these collieries to supply coal at Labuan and Brooketon to all vessels. It is said that the product is of good quality and that the facilities for accommodating vessels are the best.

F. M. S. MINING LABOR.—For the year ended June 30th, 1909, the total number of miners employed in the F. M. S. was 195,081, of which 146,507 were employed in the open and 20,249 underground.

BURMA MINING.—The output of the Burma Mines, Ltd., for the month of October was 2,900 ounces of silver and 542 tons of lead. The new blowing plant that arrived in September was installed and tested with good results. The export from these mines via Rangoon to London was 580 tons of lead and 2,900 ounces of silver.

MINING IN SIAM.—The output of tin from the provinces of Nakon Sritamarat and Patani so far as can be learned was approximately the value of $10,000 gold. There are three gold mines worked in Patani near Tomoh, says H. B. M. Vice-Consul, Mr. Wood, who also adds that the gold is found in small veinlets of quartz in country rock.

KOREAN IRON MINES.—Arrangements for the working of the Chairyong and Eunyui iron mines heretofore under the control of the Korean Government have been concluded by the Japanese Government and the management will be placed under the direction of the Edamitsu Iron Foundry. A royalty will be paid Korea.

OIL REFINING PLANT FOR SAGHALIEN.—A German Company is reported to have secured a concession to work oil deposits on the island and will instal a plant with a capacity of a million cases of kerosene and an equal amount of crude petroleum annually. Two wells will be operated and a pipe line installed to carry the product, at least 20 miles in length. The capital of the company is reported to be $900,000 gold.

MINERAL OUTPUT OF JAPAN.—The official report covering the first eight months of 1909 show an output of 65,760 ounces of gold; 2,459,280 ounces of silver; 69,332,817 pounds of copper; 8,314,200 tons of coal; 40,280,000 gallons of petroleum and 50,000,000 pounds of sulphur. This shows an increase in every branch of mining activity compared with the previous term.

BORNEO COAL.—The report of the British North Borneo Company contains the information that the output of the Cowie Harbor Company amounted to 25,120 for the year 1908.

CEMENT FACTORY AT PORT SWETTENHAM.—The announcement is made that Director D. G. Robertson of Messrs. Robertson & Co. is expected to undertake the construction of the proposed Portland Cement factory at this point early next year.

BAIKAL OIL FIELDS.—French capitalists are interested in the development of the oil deposits in this region.

BATAN COAL MINES.—These mines are now turning out 6,000 tons a month and the demand for the product already exceeds the supply. The Manila Electric Railroad and Light Company has placed an order for a continued supply of this coal for its plant in Manila.

THE CEBU COAL FIELDS.—The prospect for the development of the coal deposits of Danao are brighter than at any previous time. A report from New York is to the effect that the necessary capital has been pledged to make the enterprise a success The coal is of good quality and has been used successfully by inter-island steamers.

SHANSHI MINING DEVELOPMENT.—Advices from New York are to the effect that the United States Steel Corporation are negotiating for the control of the iron and coal deposits of this province.

FORMOSAN COAL.—Official reports place the area of coal fields in Formosa at about 35,000,000 square meters with an estimated deposit of 30,000,000 tons.

THE MIIKE MINES.—The output of these mines for October amounted in rough numbers to 138,000 tons.

MANCAYAN COPPER DEAL.—The largest deposit of copper in the Far East is that known as the Mancayan mine in Lepanto, Philippine Islands. The deposits were worked by the Spaniards and over a thousand tons of copper were taken out yearly at one time. Since American occupation the smelter was burned by the Insurgents and active work was not resumed. American prospectors have occupied the property and the Lepanto Mining Company has been interested in the option of the property. A contract was recently signed with a German Company under which the Lepanto Mining Company bonded the property under its control which includes 11 claims and fractions for a period of six to nine months. Experts are now investigating the property and it is not improbable that a deal will be closed for purchase and the development of this group. Negotiations are also being carried on with other owners of property at Mancayan with a view to including adjacent groups in the German deal. The deposits are very valuable and have been most favorable reported upon several times. Transportation to the coast seems to be the greatest item of expense to be considered, but there is reason to believe that the large body of ore of high grade available would more than warrant the investment.

PHILIPPINE PLACER PROPERTIES.—There are a number of deals pending covering the control of rich placer ground in different sections of the islands and the year 1910 promises unusual activity in this field of endeavor. All the placer properties being developed at the present time are giving unusual returns on investment and the tests made on the new properties are far from discouraging.

FINANCIAL, COMMERCIAL AND MISCELLANEOUS

THE MITSUI COMPANY, LTD.—At a meeting of the newly organized company in October the following officers were elected for the different departments of the company:

Mitsui Joint Stock Partnership:—

President—Baron H. Mitsui; Partners—Messrs. Hachirojiro Mitsui, Saburosuke Mitsui, Takayasu Mitsui; Adviser—Mr. Takashi Masuda; Auditors—Messrs. Gen-yemon Mitsui and Tokuyemon Mitsui; Councillors—Messrs. Takuma Dan, Eiji Asabuki, Shogoro Hatano, Nagafumi Ariga, Sankichi Komuro, Morinosuke Mitsui and Nagafumi Ariga.

Mining Department:—

Chief—Mr. Saburosuke Mitsui; Managing Director—Mr. Naonobu Yamada; Director—Mr. Yoshio Takahashi.

Mitsui Bank, Limited:—

President—Mr. Takayasu Mitsui; Business Manager—Messrs. Senkichiro, Hayakawa, Narishige Ikeda, Umekichi, Yoneyama; Directors—Messrs. Morinosuke Mitsui, Takuma Dan, Giichi Iida, Ken Hayashi; Auditors—Messrs. Takenosuke Mitsui, Eiji Asabuki and Tomojiro Ono.

Mitsui Bussan Kaisha, Ltd.:—

President—Mr. Hachirojiro Mitsui; Directors—Messrs. Giichi Iida, Senjiro Watanabe, Kenzo Iwahara, Kikusaburo Fukui, Senkichiro Hayakawa —Ikusaburo Fukui, Senkichiro Hayakawa, Eiji Asabuki, and Sankichi Komuro; Auditors—Messrs. Tokuyemon Mitsui, Takuma Dan and Ken Hayashi.

FORMOSA SUGAR INDUSTRY.—The production of sugar at the present time is equal to one-fourth the consumption of Japan and plans have been completed to instal an additional 30 mills having a capacity in all of 4,450 tons daily.

MANCHURIA SILK EXPORT.—The yield for the year will reach a value of yen 5,500,000 in wild silk cocoons.

TOBACCO FACTORY AT SEOUL.—The East Asia Tobacco Factory proposes installing a factory at Seoul which will give employment to over 4,000 operators for the purpose of dominating the Manchurian market.

CHAMBERS OF COMMERCE IN JAPAN.—At the end of last year there were in Japan fifty-eight Chambers of Commerce, with a total of 1,741 members, the expenses required amounting to Y-325,568.

NEW RUBBER COMPANIES.—Kwala Mersing, Ltd., (Johore), capital $700,000, shares $5; Lendu Rubber Co., Ltd., capital £60,000, £1 shares, 47,000 issued; Lumut Rubber Estates, Ltd., capital £220,000, £1 shares, 150,000 issued; British North Borneo Plantations, Ltd., £3,100, 3,000 shares at £1 and 100 at 1*s*. each; Kimanis Rubber Co., Ltd., £150,000, 100,000 shares guaranteed and 50,000 without guarantee, £1 each; Sungei Buaya Rubber Co., Ltd., capital £75,000 in £1 shares; Tamiang Rubber Estates, Ltd., capital £120,000, £1 shares; Merliman Rubber Estates, Ltd., capital £210,000, shares 2*s*.; issued 1,750,000; Eow Seng Rubber Co, Ltd., capital £21,000, 15,000 ordinary and 6,000 debenture shares; Carey United Rubber Estates, Ltd., capital £150,000, £1 shares; Lingen (Java) Rubber Estates, capital £100,000; Estates of Kedah, Ltd., capital £120,000, shares 2*s*. each; Krubong (Malacca) Rubber Plantation Co., Ltd., capital £20,000, £1 shares, issued 13,666; Batang Benar Rubber Co., Ltd., capital $250,000, shares $10 each; Sungei Krian Rubber Estates, Ltd., capital £75,000, 57,000 6% cumulative and 18,000 ordinary shares; Batu Kawan Rubber and Cocoanut Plantations Co., Ltd., capital £80,000, 63,500 shares issued at £1; Malay States Planting and Investment Co., Ltd., capital $150,000, shares $100 each.

MONGOLIAN BUTTER.—According to Consul General Hunter of Moscow Mongolian butter is marketed at Harbin at about 15 cents gold a pound as against Siberian butter at 20 cents gold a pound. It is believed that Mongolia will become a serious competitor as against Siberia owing to the large herds of cattle and the cheapness of labor in that territory.

CHINA'S POSTAL SERVICE.—This system now includes 3,493 postoffices and over 90,000 miles of postal routes. It might be said that the entire system was developed during the last eight years.

KOBE TEA TRADE.—The export of tea from this port averages over 7,000,000 pounds a year, most of which is grown in Yamato and Yamashiro.

AMALGAMATION OF RUSSIAN-CHINESE BANK AND CHINESE EASTERN RAILWAY INTERESTS.—The Japanese press are interested in the reported amalgamation of these two interests and it is claimed that most of the objections to the merger are now removed.

CEYLON RUBBER EXPORT.—The value of Ceylon grown rubber exported for the first nine months of 1910 was Rupees 4,093,227. This is almost double the value of the export for the same period last year.

JAPAN'S SUGAR IMPORT.—The import last year was valued at 19,000,000 yen while for the first six months of 1910 it amounted in value to yen 5,090,000. The decrease is largely due to the increase of Formosan sugar production which last year amounted in value to yen 9,500,000. It is expected that the production of sugar in Formosa within the next eight years will be sufficient to meet the consumption in Japan.

F. M. S. RUBBER EXPORTS.—The total export for the first nine months of 1909 amounted to 4,050,282 pounds as against 2,127,489 pounds last year.

CABLE RATES.—The following press cable rates went into effect on the Great Northern Telegraph Company's lines in October: Great Britain to China, 1*s*. 5½*d*., Great Britain to Hongkong, 1*s*. 5½*d*.; Great Britain to Philippines—Luzon 1*s*. 5½*d*., Visayas 1*s*. 7½*d*., Great Britain to Japan, Formosa and Korea, 1*s*. 7*d*.

TAPIOCA MILL IN MINDANAO.—A tapioca mill has been installed on the Holmes Plantation on the island of Lapac and a fine product is being turned out.

FORMOSAN HEMP MANUFACTURING COMPANY.—The Government of Formosa has sanctioned the payment of a subsidy of yen 10,000 annually to this company to encourage the industry in the island.

NEGROS SUGAR SYNDICATE.—The Sugar Brokers held a meeting recently in Bacolod, Negros, and among other business in the interest of the industry proposed the organization of a syndicate with ₱2,000,000 capital to exploit the cane fields and sugar industry in the Philippines.

FORMOSA'S POPULATION.—The total population of the island is about 3,200,000 of which 12,000 are foreigners.

HONGKONG SHANGHAI BANK.—A branch of this bank will be opened soon at Kuala Lumpur.

PHILIPPINE SUGAR EXPORT REGULATION.—An executive order providing for regulations for the proper and practical enforcement of the provision of the Payne Bill limiting the amount of sugar to be admitted into the United States, has been issued by the Executive Bureau requiring that all producers of sugar desiring to avail themselves of the privileges of free entry of sugar into the United States, either directly or indirectly, shall file with the Collector of Internal Revenue, in such form and manner as said Collector shall prescribe, written applications therefor before the opening of the shipping season and not later than the first day of November in each year. Each such application shall contain a statement under oath of the applicant, setting forth the quantity of sugar produced, or proposed to be produced, by such applicant during the fiscal year in which the application is made, the place and manner of production, the area of land employed, or to be employed, by such applicant, if any, its location, the quantity of sugar for which the applicant desires free entry and will ship, or intends to ship, or sell for shipment to the United States, that said sugar has been or will be actually produced by said applicant and such other data as may, from time to time, be required by the Collector of Internal Revenue.

ELECTRIC LIGHT AND POWER PLANT FOR BAGUIO

The Electrical Supply Company, Inc., of Manila was awarded the franchise for the installation of an electric light and power plant at the city of Baguio, Benguet, the summer capital of the Philippine Islands. A temporary plant will be installed by March 15th, steam power being utilized for the generation of current, but the permanent plant will be run by water power developed on the Bued River. The permanent plant will have a capacity of 4,000 lamps of which the installation of 2,200 will be made at once. The plant will supply the municipality of Baguio, the insular government buildings, Camp John Hay with light and power, while the mining and lumbering industries offer inducement for the development of a large supply of power in the near future in that region. Under the franchise the company engages to supply light at 26 centavos a kilowat hour. The cost of installation is estimated at about ₱65,000.

COLD STORES FOR THE MERCHANT MARINE

The special Marine Department of the International Cold Stores, Manila, P. I., is one of the most important under the direction of this company, and has added greatly to the desirability of Manila as a port of call. The increased trade of the department in supplying ships with fresh meats of all kinds, fish, dairy products, vegetables and fruit, has been greater than anticipated and from time to time an increase in the number of vessels making Manila a base of supply is increasing. The cold storage area controlled by the company averages about 32,000 cubic feet and the business for the year estimated from the last six months returns will reach over ₱1,000,000.

The International Cold Stores make a special feature of handling vegetables grown in the hills of Benguet with great success.

NEW INSURANCE PUBLICATION

The Shield is a neat monthly publication issued under the auspices of the China Mutual Life Insurance Co., Ltd., from its Shanghai office. The first issue contains several illustrations including a street scene in Shanghai, the new home of the company at Shanghai and photographs of Mr. Zia Saul Lang and Mr. Lee Yung Su, the former one of the organizers and the latter one of the present directors of the company. There is also a reproduction of a photograph of Mr. Lefferts Knox, District Manager of the company for Hongkong, Macao, Canton and the Philippines. *The Shield* is a credit to the publishers, and Editor Prescott is to be congratulated.

GOLD DREDGING OPPORTUNITIES

Parties with Gold Dredging Plant desirous of engaging in the development of rich Gold Placer Properties in the Philippines would find it to their interest to communicate with the undersigned.

We have Gold Placer Ground with proven values and are prepared to make liberal arrangements with responsible parties.

SQUIRES, BINGHAM & Co.,
Manila, P. I.

PURCHASE OF LARGE TRACT OF SUGAR LANDS

The purchase of the San José Estate, a tract of 55,000 acres included in the Friar Estates purchased by the Philippine Government, by American capitalists represented by Mr. E. L. Poole and Mr. P. R. Prentiss, recently concluded, is the first large deal as a result of the operation of the Payne Bill and gives promise of activity in the application of modern methods to the sugar industry in the Philippines. The price paid for the land was ₱734,000 or approximately ₱14 per acre. The capitalists behind the venture are interested in the sugar industry in Cuba and the contract for the purchase was not concluded until a careful investigation was made of the character of the soil and local conditions, so that the deal may be taken as evidence of favorable prospects for capital in the development of this insular industry.

The lands are located on the South West of the island of Mindoro commanding a splendid harbor and Mr. Poole has been making a survey with a view to selecting a site for the plant, building and docks.

The installation, if the present plans are carried out, will very probably duplicate the large plant controlled by these people in Cuba which includes a seven foot mill, nine rollers and crusher with a capacity of about 1,500 tons of cane daily. The investment will reach over ₱1,500,000. It is expected that the company will be prepared to begin operations in full blast within two years.

*LONDON, ENGLAND, METAL MARKET

**The following are November 19th prices of metals:—

COPPER	£ s. d.		£ s. d.
*Tough cake and Ingot	63 10 0	..	64 10 0
*Best Selected	63 10 0	..	64 10 0
*Electrolytic	64 10 0	..	65 0 0
*Sheets and sheathing	74 0 0	..	—
*Flat bottoms	77 0 0	..	—
STANDARD †Cash	60 12 6	..	60 15 0
STANDARD †Three Months	61 15 0	..	61 17 6
*Copper tubes, seamless per lb.	0 0 8½	..	—
*Lake	65 0 0	..	65 10 0

* Less 3½ per cent. † Net.

ALLOYS.			
BRASS: Wire	0 0 6¾	..	—
,, Tubes (solid drawn)	0 0 6⅞	..	—
,, Sheets	0 0 7	..	—

TIN.			
English ingots, f. o. b.	138 10 0	..	139 10 0
,, bars	139 10 0	..	140 10 0
,, refined	140 10 0	..	141 10 0
Straits... Cash	141 15 0	..	142 0 0
Straits... Three months	143 17 6	..	144 2 6
Australian spot	141 15 0	..	142 5 0
Banka (in Holland) Cash	141 5 0	..	—
Banka (in Holland) Three months	141 10 0	..	—

LEAD.			
Spanish or soft foreign	13 2 6	..	13 8 9
English pig, common	13 7 6	..	13 12 6
,, L. B.	13 17 6	..	—
,, sheet and bar lead	14 7 6	..	—
,, pipe	14 17 6	..	—
,, red	16 2 6	..	—
,, white	17 15 0	..	—
,, patent shot	16 7 6	..	—

SPELTER.			
Silesian ordinary brands	23 0 0	..	23 5 0
,, special brands. / English Swansea	23 10 0	..	24 0 0
Sheet zinc	25 15 0	..	—

ANTIMONY.			
Antimony	29 0 0	..	30 0 0
,, Crude	13 0 0	..	14 0 0
,, Ore (basis 50%)	8 0 0	..	9 0 0

QUICKSILVER.			
Flasks, 75 lbs. warrants	9 15 0	..	9 17 6

MANGANESE. Ore, c.i.f., U. K. ports.	Per unit.*		Per unit.*
Indian & Brazilian, 48 per cent.	0 0 9¼	..	0 0 6¾
,, ,, 45 ,,	0 0 9⅛	..	—
,, ,, 40 ,,	0 0 8¾	..	—
Caucasian, 48 per cent.	0 0 7¾	..	0 0 8

* Unit corresponds to 1 per cent.

ALUMINIUM.	Per ton.		Per ton.
98-99 per cent	67 10 0	..	70 0 0

NICKEL.	Per ton.		Per ton.
98-99 per cent. guaranteed	167 10 0	..	171 0 0

PLATINUM.

Per oz. Troy, 120s. nominal and subject to negotiation.

*Mining Journal.

HEMP STATISTICS, 30th NOVEMBER, 1909.

(Courtesy of C. S. NICHOLSON, *Secretary, Manila Chamber of Commerce.)*

EXPORT OF HEMP, NOVEMBER, 1909.

Date		*Vessel*	*London*	*L'pool*	*Atlantic U.S.*	*Pacific East & California*	*Continent.*	*Australia*	*Other Pts.*	*Total Bales*
1909		Forward:—	224,121	111,198	549,027	110,190	50,277	15,481	26,664	1,086,958
Nov.	1	Yawata Maru						1,975		1,975
"	5	Monmouthshire	11,464	305			2,245			14,014
"	"	Loongsang							300	300
"	9	Kumeric				5,020				5,020
"	"	Indrasamha			18,609					18,609
"	"	Coblenz						125		125
"	"	Taming							250	250
"	10	Changsha						250		250
"	11	Empire							400	400
"	12	Yuengsang					19		150	169
"	13	Zafiro	2,050	1,000			650			3,700
"	"	Sungkiang (Cebu)		1,550					50	1,600
"	17	Tean		1,250			500			1,750
"	18	Cyclops	8,147	400			1,700			10,247
"	19	Loongsang					650			650
"	20	Rubi							600	600
"	"	Kumano Maru							120	120
"	26	Yuensang	1,203	140			453			1,796
"	27	Zafiro	1,029				856		500	2,385
"	28	Ningchow				1,250				1,250
"	23	Kaifong (Cebu)		750						750
"	29	Nikko Maru						412		412
"	30	Alicante		250			121			371
			248,014	116,743	567,636	116,460	57,471	18,243	29,034	1,153,701

FAR EASTERN STOCKS AND QUOTATIONS

Courtesy of Messrs. Kadoorie & Co., Hongkong, December, 1909.

STOCK.	WHEN ESTABLISHED	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	AT WORKING ACCOUNT	DATE	LAST DIVIDEND.	Approximate Yield per cent per annum at Present Quotation	CLOSING QUOTATIONS.
BANKS.											
Hongkong & Shanghai Banking Corporation	1865	$15,000,000	120,000	$125	$125	g £1,500,000; s $15,250,000; i $250,000	$2,001,819	30-6-09	Interim of £2 for account 1909, @ ex 1/9 ⅛ = $22.72	4	995 sales £91.9
National Bank of China, Ld.	1891	£699,475	10) 99,925	£7	£6	c £4,099; $300,000	$30,552	31-12-08	$2 (London 3/6) for 1903	....	$65 buyers
MARINE INSURANCES.											
Canton Insurance Office, Ld.	1881	$2,500,000	10,000	$250	$50	$1,560,000; j $254,583; u $302,799	Nil.	31-12-08	$10 for 1908	7	$160 sellers
North China Insurance Co., Ld.	1863	£150,000	10,000	£15	£5	g £125,000; s Tls. 150,000; u Tls. 303,747; f Tls. 118,277	Tls. 160,512	30-6-08	Interim of 7/6 for % 1907	....	Tls. 110 buyers
Union Ins. Society of Canton, Ld.	1867	$3,100,000	12,400	$250	$100	s $3,000,000; g £90,000; f $192,248; j £105,249; u $682,609	$2,464,901	31-12-08	Final of $17 making $47 for 1907, and interim of $30 for account 1908	5½	$880 buyers
Yangtsze Ins. Association, Ld.	1862	$1,200 000	12,000	$100	$60	$1,000,000; j $294,405; f $199,234	$707,637	31-12-08	$12 and bonus $3 for 1907	7	$220 buyers
FIRE INSURANCES.											
China Fire Ins. Co., Ld.	1870	$2,000,000	20,000	$100	$20	$1,000,000; x $438,668; f $13,802	$375,314	31-12-08	$6 and bonus $2 for 1907	7	$114 buyers
Hongkong Fire Ins. Co., Ld.	1868	$2,000,000	8,000	$250	$50	$1,438,173	$368,711	31-12-08	$27 for 1907	7½	$375 sellers
SHIPPING.											
China & Manila Steamship Co., Ld.	1882	$750,000	1) 30,000	$25	$25		Dr. $21,538	31-12-08	$1 for 1906	....	$8 sellers
Douglas Steamship Co., Ld.	1883	$1,000,000	20,000	$50	$50	$230,000; s $100,589	Nil.	30-6-09	$2½ for year ending 30-6-08	....	$33
Hongkong, Canton & Macao Steamboat Co., Ld.	1865	$1,200,000	80,000	$15	$15	e $250,000; d. i. $617,500; f $119,267; $ 22,645	$21,170	30-6-09	Interim of $1½ for a/c 1909	7¾	$30½ sa. & b.
Indo-China Steam Navigation Co., Ld. (Preferred) / Do. Do. (Deferred)	1882	m £600,000	2) 60,000; 2) 60,000	£5	£5	i £148,891	£15,162	31-12-08	6/- for 1907 on pref. shares only at ex. 1/9 11/16, $3.154	....	$60 buyers
"Shell" Transport & Trading Co., Ld.	1898	£ 2,000,000	2,000,000	£1	£1	£720,000; i £100,000	£192,994	31-12-08	Final of 2/- for 1908 & int. of 1/- for a/c 1909	....	69/6 buyers
"Star" Ferry Co., Ld.	1898; 1900	$200,000	10,000; 10,000	$10; $10	$10; $5	$65,000; i $48,980	$31,21	30-4-09	$1.00; 50 cts. for year ended 30-4-09	4; 3½	$26 sales; $14½
REFINERIES.											
China Sugar Refining Co., Ld.	1878	$2,000,000	20,000	$100	$100	e $350,000; r $56,848	Dr. $5858	31-12-08	$5 for year ending 31-12-08	3½	$159
Luzon Sugar Refining Co., Ld.	1882	$700,000	7,000	$100	$100	none	Dr. $135,893	31-12-08	$8 for 1897	—	$21½ sales
Perak Sugar Cultivation Co., Ld.	—	Tls. 350,000	7,000	Tls. 50	Tls. 50	Tls. 100,000	Tls. 6,302	31-8-09	Tls. 0 for year ending 31-8-09	....	Tls. 350 s. e. d.
MINING.											
Chinese Engineering & Mining Co., Ld.	1901	£1,000,000	1,000,000	£1	£1	d £215,000; h £12,289	£1,435	28-2-09	Final of 1/6 making 3/- for 09	7	Tls. 19.30 sales
Raub Australian Gold Mining Co., Ld.	1892	£200,000	150,000; 50,000	£1; £1	18-10; £1	£4,873	Dr. £2,191	31-3-08	No. 12 of 1/- = 48 cents	....	$7½ sellers
DOCKS, WHARVES AND GODOWNS.											
Fenwick (Geo.), & Co., Ld.	1889	$450,000	s 18,000	$25	$25	$42,986	Dr $7,421	31-12-08	$1¾ for year ending 31-12-06	....	$12
Hongkong & Kowloon Wharf & Godown Co., Ld.	1886	$3,000,000	60,000	$50	$50	$550,000; t $26,806; i $40,000	$30,102	31-12-08	Final of $1½ making $3½ for 1907	—	$62 sellers
Hongkong & Whampoa Dock Co., Ld.	1866	$2,500,000	50,000	$50	$50	i $88,442; v $221,000	$345,162	30-6-09	Interim of $1½ for account 1909	..	$51 sellers
Shanghai Dock & Engin'g Co., Ld.	1906	Tls. 5,570,000	13) 55,700	Tls. 100	Tls. 100	Tls. 1,000,000	Tls. 6,261	30-4-09	Final of Tls. 2½ for year ending 30-4-1909	6½	Tls. 75 buyers
Shanghai & Hongkew Wharf Co., Ld.	1902	Tls. 3,600,000	36,000	Tls. 100	Tls. 100	b Tls. 697,257; r Tls. 50,000; e Tls. 125,000	Tls. 6,261	31-12-08	Final of Tls. 6 making Tls. 10 for 1908	7	Tls. 128 buyers
LANDS, HOTELS AND BUILDINGS.											
Anglo-French Land Investment Co., Ld.	1906	Tls. 2,500,000	3) 25,000	Tls. 100	Tls. 100	Tls. 35,000	Tls. 4,314	29-2-09	Tls. 6 for year ending 29-2-09	5¾	Tls. 105 buyers
Central Stores, Ld.	....	$751,845	16) 50,123	$15	$15	n. $1,000	$24,641	31-12-08	$1.20 on old & 60 cts. on first new issue	....	$17 sellers
Hongkong Hotel Co., Ld.	1866	$600,000; $400,000	12,000; 8,000	$50; $50	$50; $25	$648,975; r $140	$19,272	30-6-09	Interim of $2.40 old and 40 cents new for a/c 1909	—	$75 sales; $43½ new i. b.
Hongkong Land Investment & Agency Co., Ld.	1889	$5,000,000	50,000	$100	$100	e $250,000	$26,475	31-12-08	Interim of Tls. 3½ for a/c 1909	6½	$103 sales
Humphreys' Estate & Finance Co., Ld.	1887	$1,500,000	150,000	$10	$10	i $222,172; 20) $43,261	$5,486	31-12-08	60 cents for 1908	6½	$9 sellers
Kowloon Land & Bldg. Co., Ld.	1889	$300,000	6,000	$50	$30	none	$278	31-12-08	$1½ for 1908	5	$30 sellers
Shanghai Land Investment Co., Ld.	1888	Tls. 3,900,000	78,000	Tls. 50	Tls. 50	Tls. 1,523,045; e Tls. 300,000	Tls. 142,404	31-12-08	Interim of Tls. 3 for 1909	6¾	Tls. 120 sales
West Point Bldg. Co., Ld.	1889	$625,000	12,500	$50	$50	none	$1,968	31-10-08	Interim of $2 for a/c 1909	8¾	$44 sales
COTTON MILLS.											
Ewo Cotton Spinning & Weaving Co., Ld.	1895	Tls. 1,000,000	5) 20,000	Tls. 50	Tls. 50	Tls. 250,000; Tls. 40,098	Tls. 10,991	31-7-09	Tls. 11 for year ended 31-10-09	3½	Tls. 129 b. e. d.
Hongkong Cotton Spinning, Weaving & Dyeing Co., Ld.	1901	$1,250,000	125,000	$10	$10	e $20,000	$26,297	30-7-09	50 cents for year ending 31-7-08	..	$6 buyers

FAR EASTERN STOCKS AND QUOTATIONS—(Continued.)

STOCK.	When Estab-lished	CAPITAL.	No. of Shares.	Value.	Paid Up.	RESERVE	AT WORKING ACCOUNT.	Date.	LAST DIVIDEND.	Approximate Yield per cent. per annum at Present Quotation.	CLOSING QUOTATIONS
International Cotton Manufacturing Co., Ld.	1895	Tls. 750,000	6) 10,000	Tls. 75	Tls. 75	Tls. 175,000	Tls. 8,372	30-9-09	Tls. 7½ for year ending 30-9-09	....	Tls. 77½ ex. div.
Laou-kung-mow Cotton Spinning & Weaving Co., Ld.	1895	Tls. 800,000	8,000	Tls. 100	Tls. 100	none	Tls. 4,829	31-12-08	Tls. 4 for 1908	....	Tls. 106
Soy Chee Cotton Spinning Co., Ld	1895	Tls. 1,000,000	2,000	Tls. 500	Tls. 500	*l* Tls. 31,172	Tls. 15,911		Tls. 50 for 1906	....	Tls. 450
MISCELLANEOUS.											
Bell's Asbestos Eastern Agency, Ld.	1895	£5,377.10s	11) 8,604	12/6	12/6	£1,500	£682	31-12-08	15% for 1908	....	$10
China-Borneo Co., Ld.	1903	$720,000	8) 60,000	$12	$12	$40,000	Nil.	31-12-08	$1.20 for 1908	10	$12½ sales
China Light & Power Co., Ld.	1901	$550,000	50,000	$10	$10	none	$61,138	28-2-07	60 cents for year ending 28-2-06	....	$6 buyers
Do. do. Special Shares	1907		17) 50,000	$1	$1						
China Provident Loan & Mortgage Co., Ld.	1898	*a* $1,250,000	7) 125,000	$10	$10	$100,000	$3,407	31-12-08	80 cents for 1908	....	$9½ sales
Dairy Farm Co., Ld.	1896	$300,000	40,000	$7½	$6	*l* $10,000 $10,000	$1,850	31-7-09	$1.20 for year ending 31-7-09	8½	$16½ sellers
Green Island Cement Co., Ld.	1889	$4,000,000	400,000	$10	$10	$13,000	$3,756	31-12-09	Interim of 35 cents for account 1909	10	$7½ sales
H. Price & Co., Ld.	1907	$120,000	19) 15,000	$10	$10	$5,000	$670	31-12-08	80 cents for year ending 31-12-08	8	$12
Hongkong Electric Co., Ld.	1889	$600,000	60,000	$10	$10	none	$5,195	29-2-09	$1.00 and bonus 20 cents for year ending 29-2-09	6	$20½ sellers
Hongkong Ice Co., Ld.	1881	$125,000	5,000	$25	$25	*k* $150,000	$7,616	31-12-08	Interim of $2 for a/c 1909	10	$180 sellers
Hongkong Rope Manufacturing Co., Ld.	1883	$600,000	$60,000	$10	$10	$20.000	$8,790	31-12-08	Interim of $1 for a/c 1909	8½	$22½ sales
Maatschappij tot Mijn-, Boschen Landbouwexploitatie in Langkat	1902	Gs. 2,500,000	25,000	Glds. 100	Glds. 100	Tls. 547,500 *i* Tls. 63,914 21 Tls. 547,500	Tls. 316,682	31-10-08	Third quarterly dividend of Tls. 12½ for % 1909	8½	Tls. 730 sales
Peak Tramways Co., Ld.	1907	$750,000	25,000	$10	$10	$20,000	$2,204	30-4-09	80 cents on fully paid shares & 8 cents on $1 paid shares for year ending 30-4-09	6	$13½
Do. (New)			50,000	$10	$1					3	$1.40
Philippine Co., Ld.	1904	$750,000	75,000	$10	$10	none	Ps. 18.640	31-12-08	None	....	$9½ buyers
Robinson Piano Co., Ltd.	1900	$200,000	22) 4,000	$50	$50	$5,000	$61,138	31-8-08	6% for ½ year ending 30.9.07	....	$50
Shanghai-Sumatra Tobacco Co., Ld.	1902	Tls. 600,000	9) 30,000	Tls. 20	Tls. 20	Tls. 24,820 *w* Tls. 75,000	Tls. 5,250	31-10-08	Final of Tls. 5 making Tls. 8 for 1908	4½	Tls. 111 buyers
South China Morning Post, Ld.	1903	$150,000	6,000	$25	$25	none	*Dr.* $56,602	31-8-08	None	....	$23½ buyers
Steam Laundry Co., Ld.	1902	$100,000	20,000	$5	$5	none	$63	31-5-09	40 cents for year ending 30-5-09	7	$5½
Union Waterboat Co., Ltd.	1905	$500,000	15) 50,000	$10	$10	none	$172	31-12-08	60 cents for year-end. 31-12-1908	5	$10½ sales
United Asbestos Oriental Agency, Ld.	1896	$100,000	10,000	$10	$4	$46,000	$342	31-5-09	60 cents per ordinary share for year ending 31-5-09	6½	$12½ buyers
Watson (A. S.) & Co., Ld.	1886	$900,000	90,000	$10	$10	*e* $300,000 $25,000	$2,613	31-12-08	Final of 30 cents making 60 cents for 1908	6¾	$7½ sellers
Weismann Limited	1904	$17,500	175	$100	$100	$6,700	$13	31-7-07	10 per cent for year endg. 31.7.07.	....	$150
William Powell, Ld.	1901	$105,000	15,000	$7	$7	none	$782	30-6-09	Final of 30 cents making 80 cents for year ending June 30th 1906	....	$3 sellers
RUBBERS											
Anglo-Malay Rubber Co., Ltd.	1905	£150,000	1,500,000	2/-	2/-	....	....	....	Interim of 12½% for a/c 1909	....	14/3 sellers
Balgownie Rubber Estate, Ltd.	1905 ††	$200,000	‡‡ 20,000	†† $10	†† $10	$7,400	$11,205	31-3-09	20% Interim for 1909	....	$67½ b. [S'pore. 53/- sales
Castlefield Rub. Ld., [fully pd.]	1906	£35,000	27) 32,650	£1	£1	none	....	....	....	....	
Damansara (Selangor) Rub. Co.	1906	£110,000	25 110,000	£1	£1	nil.	£2,220	31-12-08	2/6 for 1909	....	77/- sellers
Golconda Malay Rubber Co.	1907	£80,000	26 80,000	£1	£1	nil.	nil.	....	....	....	55/- sellers
Highland & Lnd. Para R. Co.	1906	£310,000				£8,784	....	....	7½% for 1909 (interim.)	....	
Do. Do. [fully paid]			=181,454	£1	£1						62/6 buyers
Do. Do. [partly paid]			123,546	£1	15/-						Nominal
Kamuning (Perak) Rb. & Tin Co.	1909	£200,000	950,000	2/-	1/-	nil.	nil.	....	....	....	4/-
do do A Shares											
do do B Shares			105,000	£1	£1						
Kuala Lumpur Rubber Co., Ltd.	1906	£180,000	180,000	£1	£1						Nominal.
Linggi Plantations, Ltd. (ord.)	1895 Reconst 1905	£100,000	+900,000	2/-	2/-	....	1,820	....	....	....	89/- s. ex. div.
Do. Do. (7% pref.)			10,000	£1	£1	£4,000	....	....	3% for year ending 30-6-08	....	25/6 sales
Ragalla Rubber Co., Ltd. (ord.)	1906 ††	$250,000	22,500 ††	$10 ††	$10	....	....	....	Interim of 40% = 9d for a/c 1909.	....	Nominal
Do. Do. (8% pref.)			2,500 ††	$10 ††	$10	....	....	....	7% for year 1908	....	$26 s. [S'pore] Nominal
Ledbury Rubber Estates Ltd.	1908	£125,000	§§ 60,000	£1	£1	....	....	....	....	....	45/6 sellers
Do. Do. (contrib.)			§§ 40,080	£1	7/6	....	....	....	....	....	23/-
Sagga Rubber Co. Ld.	1903	£200,000	24) 20,000	£1	£1	nil.	nil.		....	....	95/- buyers
Sandycroft Rubber Co.	1904	$100,000	1,000	$100	$100	$20,000	$1,275	31.1.08	Interim of 30% for 1909	....	$775 buyers
Sekong Rubber Co., Ld.	1908	£80,000	27) 80,000	£1	12/6	nil.	nil.	....	....	....	19/- sellers
Shelford Rubber State Ld.	1906	£65,000	65,000	£1	£1	nil.	£836	31.12.08	3% for 1908	....	32/- sellers
Singapore & Johore Rb. Co., Ld.	1903	$250,000	2,500	$100	$100	nil.	nil.	....	....	....	$315 sellers
Sungei Choh. Rb. State Co., Ld.	1907	£45,000	45,000	£1	17/-	nil.	nil.	....	....	....	32/6 buyer
Sungei Kapar Rubber Co.	1906	£110,000	23) 110,000	£1	£1	nil.	£3,448	31.12.98	8½% Interim for 1909	....	76/-

LOANS AND DEBENTURES.	AGENTS FOR THE LOAN.	AMOUNT OF LOAN.	PAR VALUE.	OUTSTANDING BONDS.	WHEN PAYABLE.	CLOSING QUOTATIONS.	
China Government, 7 per cent. Silver Loan 1886 E	Hongkong&Shanghai Banking Corporation.	Tls. 767,200	Tls. 250	1914	Mar. 31st and Sept. 30th each year until Mar. 31st, 1917	par.	Plus interest
Hongkong Hotel Company, Ltd., 6 per cent. Mortgage Debentures of 1899 ‡		$750,000	$500	§ all	Half yearly, June 30th and December 31st	par	
Shanghai & Hongkew Wharf Company, Ltd., 6 per cent. Debentures of 1902		Tls. 543,900	Tls. 100	....	Half yearly, June 30th and December 31st	Tls. 103½	
Astor House Hotel Company, Ltd., 8 per cent. Debentures of 1903		Tls. 500,000	Tls. 100	....	Half yearly, January 1st and July 1st	102½	
Chinese Engineering & Mining Co., Ltd., 6 per cent. Debentures of 1903 †	....	£500,000	¶	£431,960	Half yearly, June 30th and December 31st	par.	
International Cotton Manufacturing Co., Ltd. 7% Debentures of 1901	Russo Chinese Bank	Tls. 500,000	Tls. 100	‖	Half yearly, March 31st and Sept. 30th	Tls. 97½.	

a Authorized capital $2,000,000.
b Building Reserve Account.
c Capital Reserve Fund.
d Depreciation Fund.
e Equalization of Dividend Fund.
f Exchange and Investment Fluctuation Account.
g Gold Reserve Fund
h Exchange Reserve Account.
i Insurance Fund.
j Reinsurance Fund.
k Contingencies Account.
l Legal Reserve Fund.
m Authorized Capital
n Sinking Fund.
o Raw Sugar Reserve Account.
p Premium on New Issue.
q Boiler Repairs and Renewals Account
r Repairs and Renewals Account.
s Silver Reserve Fund.
t Depreciation and Repair Account
u Underwriting Suspense Account.
v Special account
w Special Works Fund.
x Extra Reserve Fund.
y 72,560 owned by the Company.
z 7,200 shares unissued.
1 4,000 shares unissued.
2 First issue of 60,000 of which 10,411 unallotted.
3 5,000 shares unissued.
4 4,480 shares unissued.
5 5,000 shares unallotted.
6 1,616 shares unallotted.
7 75,000 shares unissued.
8 14,000 shares unissued.
9 17,000 shares unissued.
10 40,453 shares actually issued.
11 7,688 shares actually issued.
12 4,200 shares unissued.
13 500 shares unissued.
14 399 shares unissued.
15 22,277 shares unissued.
16 10,000 shares unissued.
17 Special shares are entitled to half of the profits.
18 Capital contributed by Chinese Government Kuping Tls. 5,000,000.
19 12,000 issued only.
20 Typhoon and Floods Insurance Fund
21 Special Cash Reserve.
22 1000 shares unissued.
23 10,000 shares unissued.
24 4595 part paid shares.
25 7,500 shares unissued.
26 10,000 shares unissued.
27 2.350 shares unissued.
*Based on last year's dividend.
** Based on present dividend.
§ 216 held by the Company.
‖ Only Tls. 134,000 taken up.
¶ In certificates of £20 and £100.
‡ Redeemable in 10 years, or at option of Company, the Company giving 6 months notice.
† Redeemable at par at rate of £10,000 per annum from 31st December 1903 to 31st December 95.
*** Redeemable at par on 30th June, 1915.
Dr. Deficit.
†† Singapore dollars.
‡‡ 4,880 shares unissued.
× 16,756 shares unissued.
§§ 25,000 shares unissued.
= 4140 shares unissued.

ADDITIONAL SHANGHAI SHARE QUOTATIONS

STOCK	CLOSING QUOTATIONS	HIGHEST AND LOWEST PRICES DURING THE WEEK	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	LAST DIVIDEND	WHEN PAID
Oriental Consolidated Mining Co., Ltd.	27s. 6d.		G. $5,000,000	500,000	G. $10	G. $10	none	Interim of Gold .50 for 1909	June 30, 1909
Vulcan Iron Works, Limited	Tls. 400		Tls. 500,000	1,000	Tls. 500	Tls. 500	—	Tls. 50 for year ended 31.8.06	Nov. 1, 1906
Yangtsze Wharf & Godown Co., Limited	Tls. 125 nominal		Tls. 250,000	2,500	Tls. 100	Tls. 100	Tls. 50,000	Tls. 15 for 1908	April 1, 1909
Wei-hai-wei Land & Building Co., Limited	Tls. 10 nominal		Tls. 91,850	3,674	Tls. 25	Tls. 25	—	—	—
Union Estate & Investment Co., Limited	Y. 105 sales		Y. 1,000,000	10,000	Y. 100	Y. 100	—	First year	—
Hotel des Colonies Company, Limited	Tls. 9 sellers		Tls. 112,500	9,000	Tls. 12½	Tls. 12½	Tls. 29,783	6% for 1907	May 29, 1908
Kalee, Limited	$100 nominal		$400,000	4,000	$100	$100	—	2% for 1908	July 3, 1909
Anglo-German Brewing Co., Limited	$85 buyers		$100,000	4,000	$100	$100	none	$7 for 1907	Mar. 12, 1908
Butler Tile Works, Limited	Tls. 50 nominal		Tls. 60,000	1,200	Tls. 50	Tls. 50	—	Tls. 3 for year ending 31.3.09	June 8, 1909
Major Bros., Limited	Tls. 40 sellers		Tls. 300,000	6,000	Tls. 50	Tls. 50	—	—	—
Oriental Ice Company, Limited	Tls. 50		Tls. 130,000	2,600	Tls. 50	Tls. 50	—	First year	—
Scharffs Oil and Bone Mills, Ltd.	Tls. 50		Tls. 200,000	4,000	Tls. 50	Tls. 50	—	First year	—
Shanghai Ice Company, Limited	Tls. 13 sales		Tls. 200,000	8,000	Tls. 25		—	3% for 1907	Mar. 14, 1908
Shanghai Oil Co., Limited	Tls. 25		Tls 175,000	7,000	Tls. 25	Tls. 25	—	First year	—
Campbell, Moore & Co., Limited	$10 buyers		$12,000	1,200	$10	$10	$9,000	$3 for 1905	Apr. 2, 1906
Dunning & Company, Limited	$50 sellers		$100,000	2,000	$50	$50	—	$5 year ending 28.2.08	Apr. 15, 1908
J. Llewellyn & Co., Limited	$50 buyers		$72,000	1,200	$60	$60	—	7.20 for 1908	Apr. 1, 1909
Lane, Crawford & Company	$137½ sales		$250,000	2,500	$100	$100	—	Final of 3% making 6% for 1908	June 8, 1909
Mondon (E. L.) Limited	Tls. 6 buyers	137½	Tls. 225,000	9,000	Tls. 25	Tls. 25	none	—	—
S. Moutrie & Company, Limited	$48 sellers		$250,000	5,000	$50	$50	—	$4 for year ended March 31, 1908	June 18, 1908
Weeks & Company, Limited	$26½ buyers		$400,000	20,000	$20	$20	$40,000	Final of $1.20 making $2 for 1908	May 20, 1909
Dominion Rubber Co., Limited	Tls. 4		Tls. 225,000	22,500	Tls. 10	Tls. 4	—	First year	—
Kalumpong Rubber Co., Ltd.	Tls. 42 sellers		Tls. 700,000	14,000	Tls. 50	Tls. 50	** Tls. 11,844.48	6% for 1907	Nov. 29, 1908
Senawang Rubber Estates Company, Limited	Tls. 100		Tls. 250,000	2,500	Tls. 100	Tls. 100	—	—	—
Senawang Rubber Estates Company, New	Tls. 75				Tls. 100	Tls. 75			
Tebong Rubber and Tapioca Estate, Limited	20s.		£76,000	76,000	£1	£1	—	—	—
Eastern Fibre Co., Limited	Tls. 10 nominal		Tls. 300,000	30,000	Tls. 10	Tls. 10	—	1/ ex. 2/6=Tls. 0.40 for 1908	August 5, 1909
Shanghai Mercury, Limited	Tls. 50 buyers		Tls. 105,500	2,100	Tls. 50	Tls. 50	—	Final of 6% making 10% for year ended 30.4.08	June 29, 1908
Shanghai Mutual Telephone Co., Limited	Tls. 62 buyers		Tls. 675,000	13,500	Tls. 50	Tls. 50	—	Tls. 3 for 1907	June 28, 1908
China Export, Import & Lumber Company, Limited	Tls. 78 nominal		Tls. 350,000	500	Tls. 100	Tls. 50	—	10 p. c. for year ending 29.2.08	May 1, 1908
China Printing Co., Limited	Tls. 42½		Tls. 750,000	1,500	Tls. 50	Tls. 50	—	7% 1908	Apr. 18, 1909
Dallas Horse Repository Co., Ltd	Tls. 25 nominal		Tls. 250,000	5,000	Tls. 50	Tls. 50	—	—	—
Hirano Mineral Water Co., Ltd.	Y. 15 sales		Y. 125,000	5,000	Y. 25	Y. 25	—	10%=yen 2½ for year ending 30th Sept. 08 Y. 1.20 for year ended Feb. 29	Apr. 26, 1909
E. E. Porter & Co., Limited	$50		$100,000	2,000	$50	$50	—	$6 for 1907	Apr. 22, 1908
Shanghai Electric & Asbestos Company, Limited	$20 sales		$125,000	5,000	$25	$25	—	8% for year ended Feb. 28, 09	June 21, 1909
Shanghai Electric Construction Company, Limited	£11 buyers	£11	£300,000	30,000	£10	£10	—	First year	—

DEBENTURES

LOANS	PRICE—PLUS ACCRUED INTEREST	AMOUNT OF LOAN	OUTSTANDING	NOMINAL VALUE	RATE OF INTEREST	WHEN PAYABLE
Shanghai Municipal Debentures 1892	Tls. 92½	Tls. 50,000	Tls. 45,400	Tls. 100	5 %	June & Dec.
do 1893	,, 96	,, 125,000	" 32 000	" 100	5½ ,,	Do
do 1894	,, 104½	,, 105,000	" 60,000	" 100	6 ,,	Do
do 1895	,, 92½	,, 115,000	" 32,600	" 100	5 ,,	Do
do 1896	,, 92½	,, 140.000	" 131 800	" 100	5 ,,	Do
do 1897	,, 92½	,, 268,800	" 268,400	" 100	5 ,,	Do
do 1898	,, 104½	,, 300 000	" 60,000	" 100	6 ,,	Do
do 1900	,, 96	,, 33,900	" 31,700	" 100	5½ ,,	Do
do 1901	,, 104½	,, 250,000	" 200,000	" 100	6 ,,	Do
do 1902	,, 104½	,, 150,000	" 150,000	" 100	6 ,,	Do
do 1903	,, 104½	,, 490 500	" 490.500	" 100	6 ,,	Do
do 1904	,, 104½	,, 214,500	" 214.500	" 100	6 ,,	Do
do 1905	,, 104½	,, 320 000	" 320,000	" 100	6 ,,	Do
do 1907	,, 104½	,, 250.000	" 250,000	" 100	6 ,,	Do
Chinese Imperial Government Loan 1886 E	,, 250	,, 767,200	" 354,400	" 250	7 ,,	Mar. & Sept
Shanghai Land Investment Co., Debentures 1890	,, 102	,, 250.000	" 250,000	" 100	6 ,,	May & Nov.
do 1892	,, 96	,, 250.000	" 250.000	" 100	5½ ,,	June & Dec.
do 1894	,, 101	,, 250.000	" 250.000	" 100	6 ,,	Mar. & Sept.
do 1896	,, 92½	,, 250,000	" 250,000	" 100	5 ,,	June & Dec.
do 1900	,, 102	,, 250.000	" 250,000	" 100	6 ,,	April & Oct.
do 1901	,, 102	,, 250.000	" 250,000	" 100	6 ,,	June & Dec.
do 1901	,, 96	,, 100 000	" 100 000	" 100	5 ,,	May & Nov.
do 1902	,, 102	,, 400.009	" 400.000	" 100	6 ,,	June & Dec.
do 1905	,, 102	,, 250.000	" 250.000	" 100	6 ,,	Do
Shanghai Waterworks Co., Debentures 1894	,, 103	,, 100,000	" 100,000	" 100	6 ,,	Mar. & Sept.
do 1896	,, 92½	,, 100,000	" 100,000	" 100	5 ,,	June & Dec.
do 1899	,, 103	,, 50 000	" 50,000	" 100	6 ,,	Do
do 1900	,, 103	,, 100.000	" 100,000	" 100	6 ,,	Mar. & Sept.
do 1902	,, 103	,, 100.000	" 100,000	" 100	6 ,,	Do
do 1903	,, 103	,, 100 000	" 100 000	" 100	6 ,,	June & Dec.
Perak Sugar Cultivation Co., Debentures 1902	,, 101	,, 200,000	" 200 000	" 100	7 ,,	April & Oct.
Shanghai Gas Co., Debentures 1897	,, 92½	,, 100.000	" 100.000	" 100	5 ,,	Do
do 1899	,, 102	,, 1,000,000	" 100,000	" 100	6 ,,	May & Nov.
do 1900	,, 102	,, 2,000,000	" 200.0 0	" 100	6 ,,	June & Dec.
Shanghai and Hongkew Wharf Co., Debentures 1902	,, 100½	,, 799.800	" 799,800	" 100	6 ,,	Do
Astor House Co., Debentures 1905	,, 103	,, 500,000	" 500.000	" 100	7 ,,	Do
British Municipal Council, Hankow 1901	Sh. ,, 105	H'kow Tls 100,000	H'kow Tls 100 000	" 100	7 ,,	June & Dec.
Shanghai Club Debentures 1907	,, 96	Tls. 170,000	Tls. 170,000	" 100	6 ,,	Do
Country Club Debentures	,, 97	,, 139.000	" 139,000	" 100	6 ,,	Do
do 1907	,, 97	,, 92,000	" 92,000	" 100	6 ,,	Do
Lane Crawford & Co., Debentures 1907	,, 100	,, 110,000	" 110.000	" 100	7 ,,	Mar. & Sept.
Anglo-French Land Debentures 1908	,, 102½	,, 250,000	" 250,000	" 100	6 ,,	June & Dec.

SINGAPORE SHARE QUOTATIONS

(Courtesy Messrs. Fraser & Co., Brokers, Singapore, November, 1909)

Date of Formation	Capital	Capital paid up	No. of Shares Issued	Issue Value	Paid up	Reserve	Last Dividend	Name	Buyers.	Sellers.
								MINING		
1903	$300,000	300,000	30,000	10	10	......	12% for year ending 31-3-09	Belat Tin Mining Co., Ltd.	5.00	5.25
1907	$300,000	225,000	22,500v	10	10	......		Bruang Ltd.	4.75	5.00
1901	$600,000	600,000	60,000	10	10	25,000	10% for year ending 30-4-08	Bruseh Hydraulic Tin Mining Co., Ltd.	7.00	7.25
1903	£600,000	444,200	444,200a	1	1	......		Duff Development Co., Ltd.	6.90	7.00
1907	$400,000	375,000	37,500b	10	10	......		Kanaboi, Ltd.	1.20	1.30
1901	£60,000	60,000	60,000	1	1	......	2/- interim for 1909	Kinta Tin Mines, Ltd.	12.00	12.25
1906	£100,000	100,000	100,000	1	1	......		Kledang Tin Mining Co., Ltd.	1.50	2.00
1905	$150,000	99,000	9,900c	10	10	6,485.68	35% for year ending 31-12-07	Kuantan Tin Mining Co., Ltd.	2.75	3.00
1906	£120,000	120,000	120,000	1	1	......		Lahat Mines Ltd.	10.00	10.25
1906	£30,000	30,000	30,000	1	1	......		Malaya and Siam Corporation, Ltd.	....	5/-
1906	$450,000	450,000	45,000	10	10	......		Malacca Tin Dredging Co., Ltd.	2.00	2.50
1906	£250,000	179,500	500,000e	5/-	5/-	......		Pahang Consolidated Co., Ltd.	6/-	6/6
1907	£100,000	80,000	80,000f*	1	1	......		Pengkalen, Ltd.	6.15	6.25
1904	£100,000	80,000	80,000	1	1	......		Pusing Bahru Tin Mines, Ltd	8.25	8.50
1904	£120,000	100,000	100,000d	1	1	6,000	45% for year ending 30-6-07	Pusing Lama Tin Mines, Ltd.	3.50	4.00
1907	$450,000	300,000	30,000d*	10	10	......		Rahman Hydraulic Tin, Ltd.	7.50	7.75
1905	£27,000	27,000	27,000	1	1	......	1/- interim during 1907	Rambutan, Ltd.	7.25	7.50
1892	£200,000	191,250 }	50,000	1	1	4,873	1/- paid January 1901	Raub Aust. Gold Ming. Co., Ltd.	5.00	5.50
			150,000	1	18/10	......	1/- " " "	" " " *Contributory*	4.50	5.00
1905	£40,000	40,000	40,000	1	1	......		Redhills Tin Mining Co., Ltd	2.00	2.50
1900	$110,000	110,000	22,000	5	5	......	3% for year ending 22-1-09	Royal Johore Tin Mining Co., Ltd	1.25	1.50
1907	$550,000	500,000	50,000l*	10	10	......		Salak South, Ltd.	4.50	4.75
1907	£80,000	80,000	80,000	1	1	......		Sempam Tin Mines, Ltd.	2.25	2.35
1906	$850,000	850,000	85,000	10	10	25,000	5% interim for 1909	Serendah Hydraulic Tin Ming. Co., Ltd.	6.90	7.00
1899	$230,000	230,000	23,000	10	10	......	3% for ½ year ending 31-12-08	Sipiau Tin Co., Ltd	2.00	2.[illegible]5
1909	$200,000	$150,000	15,000	10	10	......		Sungei Gau Tin Mining Co., Ltd.	....	3.50
1907	£90,000	70,000	70,000w	1	1	......	1/6 interim for 1909	Tekka, Limited	14 75	15.00
1906	£150,000	150,000	150,000	1	1	......	1/- interim for 1909	Tongkah Harbour Tin Dredging Co., Ltd.	14.50	15.00
1902	£160,000	160,000	160,000	1	1	......	1/- interim for 1909	Tronoh Mines, Ltd.	10.75	10.90
								RUBBER		
1909	£85,000	75,000	750,000	2/-	2/-	.....		Allagar Rubber States, Ltd	3/3	3/4½
1909	$120,000	105,000	105,000e‡	1	1	......		Alor Gajah Rubber Estate, Ltd	1.25	1.30
1905	£150,000	150,000	1,500,000	2/-	2/-	......	24% interim during 1909	Anglo-Malay Rub. Co., Ltd.	14/-	14/3
1905	$200,000	151,200	15,120c*	10	10	7,400	20% interim for 1909.	Balgownie Rub. Estate, Ltd.	66.00	67.00
1904	£30,000	20,187 10/-	{ 19,000	1	1	......	10% for year ending 31-12-08	Batu Caves Rub. Co., Ltd.	5.10.0	5.13.6
			4,750f	1	5/-	......				
1906	£80,000	70,000	70,000s*	1	1	......	5% for year ending 31-3-09	Batu Tiga (Selangor) Rubber Co., Ltd.	2.1.0	2.2.0
1909	£100,000	66,135 {	57,816	1	1	......		Bukit Kajang Rubber Estates, Ltd	1.19.0	2.0.0
			22,184x*	1	7/6	......		" " " *Contributory*	1.2.6	1.4.0
1907	£30,000	22,500 }	18,000k*	1	1	......		Bukit Lintang Rubber Estates, Ltd	2.17 6	2.19.0
			6,000	1	15/-	......		" " " *Contributory*	2.8.0	2.10.0
1903	£70,000	66,700	66,700g‡	1	1	2,000	15% interim for 1909	Bukit Rajah Rubber Co., Ltd.	8.6.0	8.9.0
1906	£35,000	30,000	30,000	1	1	......		Castlefield (K.) R. Estate, Ltd.	2.10.0	2.12.0
1909	200,000	62,500	12,500‡c	10	5	......		Cheras Rubber Estates, Ltd	6.50	7.00
1909	£225,000	175,000	1750,000d	2/-	2/-	......		Chersonese (F.M.S.) Estates, Ltd	2/3	2/4½
1904	£16,000	16,000 }	100,000	2/-	2/-	......	25% interim for 1909	Cicely Rubber Estates Co., Ltd	1.4.6	1.6.0
			60,000	2/-	2/-	.....	26½% interim for 1909	" " " " 5% *Pref.*	1.5.6	1.7.0
1905	£75,000	62,007	62,007i	1	1	1,000	20% interim for 1909	Consolidated Malay Rub. Estates, Ltd	6.8.0	6.12.6
1906	£110,000	102,500	102,500r*	1	1	......	12% for year ending 31-12-08	Damansara (Selangor) Rubber Co., Ltd.	3.19.0	4.0.0
1909	£45,000	40,000	40,000z‡	1	1	......		Edinburgh Rub. Estates, (Selangor) Ld.	2.0.0	2.1.6
1909	$550,000	475,000	475,000f‡	1	1	......		Elphinstone Estates, Ltd	1.60	1.75
1907	£80,000	70,000	70,000y*	1	1	......		Golconda Rubber Co., Ltd.	2.17.0	2.18.0
1906	$680,000	680,000	40,000	17	17	......		Hevea Rubber Planting Co. Ltd.	16.50	17.00
1906	£310,000	305,000	305,000	1	1	8,784	7½% interim for 1909	Highlands & Lowds. Para Rub. Co., Ltd.	3.5.0	3.7.6.
1904	£50,000	30,000	30,000	1	1	2,500	5% for year ending 30-6-09	Inch Kenneth Rubber Estates, Ltd.	6.12.6	6.13.6
1909	£200,000	182,500 }	950,000j	2/-	1/-	......		Kam. (P.) R. & T. Co., Ltd. "A" Shares	4/6	4/9
			105,000	1	1	......		" " " "B" "	....	nom.
1905	£65,000	65,000	65,000a‡	1	1	......		Kapar Para Rubber Estates, Co., Ltd.	4.10.0	4.12.0
1906	£180,000	180,000	180,000q	1	1	......	20% for year ending 30-6-09	Kuala Lumpur Rubber Co., Ltd.	4.14.0	4.15.0
1907	£100,000	90,000	90,000	1	1	......	7% for year ending 30-12-08	Labu (F. M. S.) Rubber Co., Ltd. *Contrib.*	3.0.0	3.2.6
1907	£320,000	234,355 }	198,930	1	1	3,000	10% for year ending 31-12-08	Lanadron Rubber Estates, Ltd.	3.17.6	4.2.6
			70,850	1	10/-	......		" " " *Contributory*	2.19.0	3.0.0
1906	Gs 135,000	135,000	580	250	250	......		Langen Rub. and Cocoanut Co., Ltd.	275.00	295.00
1908	£125,000	75,000 }	60,000o*	1	1	......		Ledbury Rubber Estates Ltd.	2.2 6	2.4.0
			40,000s	1	7/6	......		" " " *Contributory*	1.5.0	1.6.6
1895	£100,000	98,324 8/- }	883,244	2/-	2/-	4,000	40% interim 1909	Linggi Plantations Ltd., *Ordinary*	1.3.3	1.3.9
			10,000	1	1	......	7% for year ending 31-12-08	" " " 7% *Pref.*	....	nom.
1907	£140,000	118,000	118,000	1	1	......	3% for year ending 31-12-08	London Asiatic R. & Produce Co., Ltd.	2.11.0	2.13.0
1906	£400,000	300,000 }	185,000	1	1	......	7½% for year ending 31-12-07	Malacca Rubber Plants., Ltd. *Ordinary*	8.9.0	8.17.6
			115,000	1	1	......	" " " " " "	" " " 7½% *Pref.*	8.9.0	8.17.6
1909	$400,000	400,000	80,000	5	5	......		Pajam Limited	8.00	8.25
1903	£30,000	22,500	225,000	2/-	2/-	......	25% interim during 1909	Pataling Rubber Estates Synd. Ltd	1.3.6	1.4.0
1909	$500,000	450,000	45,000	10	10	......		Pegoh, Limited	23.00	23.25
1906	£85,000	85,000	85,000	1	1	......	10% for year ending 31-3-09	Perak Rubber Plantations, Ltd.	3.5 0	3.6.0
1006	$250,000	225,000 {	22,500	10	10	......		Ragalla Rubber Co., Ltd. *Ordinary*	27.50	28.00
		25,000 }	2,500	10	10	......		" " " 8% *Preference*	29.00	30.00
1909	£60,000	36,875 }	15,000l	1	1	......		Rembia Rubber Estates Ltd. *Ordinary*	....	nom.
			35,000	1	10/-	......		" " " 6% *Cum. Pref.*	13/3	14/-
1904	£20,000	18,752	20,000	1	1	......		Sagga Rubber Company, Limited	4.15.0	4.17.6
1904	$100,000	100,000	1,000	100	100	20,000	30% interim for 1909	Sandycroft Rubber Co., Ltd	775.00	800.00
1907	£100,000	80,400 }	48,000	1	1	......		Seafield Rubber Co., Ltd	3.7.6	3.9.0
			48,000	1	13/6	......		" " " *Contributory*	2.17 6	3.0.0
1898	£30,000	30,000	300,000x	2/-	2/-	3,000	25% interim for 1909	Selangor Rubber Co., Ltd	1.15.0	1.15.6
1906	£65,000	65,000	65,000g*	1	1	......	3% for year ending 31-12-08	Shelford Rubber Estate, Ltd.	1.13.3	1.14.0
1909	£120,000	100,000	100,000p*	1	1	......		Singapore Para Rubber Estates, Ltd.	1.12.0	1.12.6
1905	$500,000	500,000	5,000	100	100	......		Singapore Rubber Co., Ltd.	220 00	230.00
1903	$250,000	250,000	2,500	100	100	......		Singapore & Johore Rub. Co., Ltd	310.00	320.00
1909	$250,000	60,000	10,000x*	10	6	......		St. Helena Rubber Coy., Ltd	13.50	14.00
1906	£175,000	175 000	175,000	1	1	......	4½% for year ending 31-3-09	Straits Settlements (B.) Rub. Co., Ltd.	1.13.0	1.13.6
1907	£45,000	40,500 }	12,600	1	1	......		Sungei Choh Rub. Estate, Ltd. *Fully pd.*	2.0.0	2.1.0
			32,400	1	17/6	......		" " " " *Contributory*	1.15.6	1.16.0
1906	£110,000	100,000	100,000h*	1	1	......	7½% interim for 1909	Sungei Kapar Rubber Co., Ltd.	3.15.0	3.16.0
1907	£70,000	55,000	55,000	1	1	......		Sungei Salak Rubber Co., Ltd.	2.0.6	2.1.6
1904	£50,000	50,000	50,000	1	1	......		Sungei Way (Selangor) Rub. Co., Ltd.	3.2.6	3.5.0
1908	£150,000	60,000 }	36,000	1	1	......		Tebrau (Johore) Rubber Co	1.13.0	1.14.0
			64,000	1	7/6	.....		" " " *Contributory*	1.1.0	1.1.0
1909	$200,000	165,000	33,000v*	5	5	.....		Teluk Anson Rubber Estate, Ltd	4.50	5.00
1907	£200,000	170,000	170,000r*	1	1	.....	5% for year ending 31-8-08	United Serdang (S.) R. Plantations, Ltd.	3.7.6	3.9.6
1909	$1,000,000	637,500 }	737,500m	1	1	......		United Singapore Rubber Estates, Ltd.	1.20	1.25
				1	-/50	......		" " " " "	....	nom.
1908	£85,000	65,000	650,000	2/-	2/-	......	10% September, 1909	United Sumatra Rubber Estates, Ltd.	7/-	7/6
1904	£60,000	50,600	506,000n	3/-	2/-	......	80% for year ending 31-3-09	Vallambrosa Rubber Co., Ltd.	1.3.6	1.4.0
								GENERAL		
1907	$1,500,000	1,065,150 }	25,000i*	10	10	......	10% for year ending 31/12/08	Eastern Smelting Co. Ltd.	....	10.00 n.
			116,450	10	7	......	10% for year ending 31-12-08	" " "	7.60	7.75
1898	$225,000	225,000	4,500	50	50	150,000	15% & 2½% bon. for yr. end. 31-12-08.	Fraser & Neave, Ltd.	146.00	147.50
1905	$2,400,000	2,400,000 }	18,000	100	---	75,000	2½% for year ending 31-10-08	Howarth Erskine, Ltd.	76.00	78.00
			6,000	100	...	......	7% for year ending 31-10-08	" " 7% *Pref*	95.00	97.50
1896	$1,000,000	1,000,000 {	6,000	100	100	600,000	10% for year ending 31-12-07	Katz Brothers, Ltd. *Deferred*	---	117.50
			4,000	100	100	......	8% " " " " "	" " 8% *Cum. Pref*	....	nom.
1901	$34,000	34,000	3,400	10	10	......	20% for year ending 31-10-08	Maynard & Co., Ltd.	22.50	25.00
1899	$875,000	875,000 }	6,000	100	100	175,000	5% for year ending 31/12/08	Riley, Hargreaves & Co., Ltd.	60 00	62.50
			2,750	100	100	......	7% for year ending 31/12/08	" " " " 7% *Pref.*	100.00	102.50
1903	$600,000	250,000	25,000o	10	10	......	10% for year ending 30-6-09	Singapore Cold Storage Co., Ltd	11.75	12.00
1891	$30,000	30,000	600	50	50	23,000	10% for year ending 31-7-08	Singapore Dispensary Ltd.	55.00	57.50
1903	£400,000	400,000	400,000	1	1	......		Singapore Electric Tramways, Co., Ltd.	3/9	4/-
1884	$200,000	200,000	2,000	100	100	35,000	10% during 1907	Straits Ice Co., Ltd	---	150.00
1890	$500,000	498,000	4,980c*	100	100	760,000t	5% interim for 1909.	Straits Steam Ship Co., Ltd.	190.00	192.50
1887	$3,000,000	3,000,000	300,000	10	[* 10 }	130,000u 1,222,409	{ 10% & 5% bon. for half yr. end. 31-3-09	Straits Trading Co., Ltd.	53.50	53.75

a { 152,800 unissued; 43,949 6% debenture
b 2,500 unissued
c 5,100 "
d 20,000 "
e { 54,500 £1 Prefs. issued; 45,500 £1 " unisd.; 100,000 5/- Ord. "
f 6,250 unissued
g 3,300 "
h 12,993 "
i 5,000 "
j £40,000 6% Debentures 22,000 unissued

k 75,000 unissued
l 94,000 "
m 35,000 "
n 20,000 "
o 175,000 unissued "A" shares
p Sundry Reserves.
q "
r 7,500 unissued
s 20,000 "
t 2,268 9/- paid shares
u 50,220 unissued
a* 16,756 "
c* 4,880 "

d* 15,000 "
e* 20 "
f* 20,000 "
g* 221 7½% Debentures
h* 10,000 unissued
i* 8,550 "
k* 6,000 "
l* 5,000 "
m* 25,000 "
o* 10,000 "
p* 4,000 "
q* 30,000 "
r* 7,500 "
s* £10,000 Convertible 6% Debentures issued

t* 10,000 do unissued
n* 5,000 "
w* 20,000 "
x* 15,000 "
v* 7,000 "
e‡ 20,000 "
b‡ 5,000 "
d‡ 500,000 "
a‡ 15,000 "
z* 75,000 "
u* 15,000 "
c‡ 100,000 "
u 262,500 "
f‡ 10,000 "

DEBENTURES

Name	Buyers.	Sellers.
Howarth Erskine, Ltd. 6% .... $ 600,000	....	3% d.
Riley, Hargreaves & Co., Ltd. 6%, 284,000	1%	3% p.
Singapore Electric Tramways, Co., Ltd. 5% £350,000	....	....
Singapore Municipal 15% 1,878,000	3%	6% p.
" " 4½% of 1907 ... 1,600,000	3%	4½% p.
" " 4½% of 1909 ... 1,000,000	3%	5½% p.
" " 4% 602,900	6%	7% d.

YOKOHAMA SHARE QUOTATIONS

COURTESY A. C. HUTTON POTTS, SHARE AND GENERAL BROKER, YOKOHAMA, OCTOBER, 1909.

STOCKS.	CAPITAL.	NO. OF SHARES.	ISSUE VALUE.	AMOUNT PAID UP.	RESERVE FUND.	AT WORKING ACCOUNT OR CARRIED FORWARD.	DATE.	LAST DIVIDEND.	FOR TERM.	CLOSING QUOTATION.
Brett & Co., Ltd.	-Y- 28,000	2,800	-Y- 10	-Y- 10			31-12-08	12½%	for 1 year	10 Sales.
Club Hotel, Ltd.	185,000	1,850	100	100	3,000	-Y- 768.96	31-3-08	7%	for 1 year	70 Nominal.
Grand Hotel, Ltd.	500,000	5,000	100	100	10,000		30-6-09	4%	for ½ year	100 Sellers
Helm Bros., Ltd.	186,000	3,720	50	50	25,000	-Y- 6,395.55	31-12-08	17½%	for 1 year	80 Sales,
Langfeldt & Co., Ltd.	100,000	2,000	50	50	10,000	6,296.63	30-6-09	5%	for ½ year	45 Sellers.
C. Nickel & Co., Ltd. †	500,000	20,000	25	25		1,782.10	31-10-08	20%	for 1 year	45 Buyers
Yokohama Engine and Iron Works *	500,000	10,000	50	50	50,000	-Y- 29,421.19	31-5-08	10%	for 1 year	70 Sales
Oriental Hotel, Ltd., Ordinary }	250,000	3,000	50	50	306,090.49		31-8-07	12%	for 1 year	50 Nominal.
Oriental Hotel, Ltd., Preference }		2,000	50	50				8%	for 1 year	50 Nominal.
The Union Estate and Investment Co., Ltd. ‡	1,000,000	10,000	100	100	6,000.00	1,753.03	30-9-08	7%	for 1 year	100 Nominal.

† 285,000 unissued.
‡ 475,000 unissued.

*-Y- 390,000 issued.
110,000 unissued.

DEBENTURE LOANS.	AMOUNT OF LOAN.	FACE VALUE OF DEBENTURES.	RATE OF INTEREST.	INTEREST PAYABLE.	CLOSING QUOTATION.
Brett & Company, Limited	11,500.00	100.00	7%	1 June and 1 Dec.	95 Sales.
Yokohama United Club	250,000.00	100.00	7%	30 June and 31 Dec.	100 Sales.
C. Nickel & Company, Limited	50,000.00	100.00	8%	1 May and 1 Nov.	110 Sellers.
Oriental Hotel, Limited	250,000.00	100.00	8%	1 April and 1 Oct.	101 Sellers.
Union Estate and Investment Co., Limited	250,000.00	100.00	6%	30 June and 31 Dec.	95 Sellers.

JAPANESE STOCKS.	FACE VALUE.	AMOUNT PAID UP.	LAST DIVIDEND.	DIVIDEND PAYABLE.	CLOSING QUOTATION.
Bonds & Debentures.					
Exchequer Bonds 2nd issue	-Y-100	-Y-100	5%	March and Sept.	-Y-100.00
Exchequer Bonds 3rd issue	100	100	5%	March and Sept.	,, 100.00
Consolidated Bonds (Seiri)	100	100	5%	June and Dec.	,, 98.60
War Bonds (Gunji)	100	100	5%	June and Dec.	,, 98.60
Imperial 5% Bonds	100	100	5%	March and Sept.	,, 97.50
Special 5% Bonds (issued 1906)	100	100	5%	June and Dec.	,, 98.60
Yokohama Water Works Bonds	100	100	6%	June and Dec.	,, 103.00
Yokohama City Public Loan Bonds	100	100	6%	March and Sept.	,, 102.00
Osaka City Harbour Construction Bonds	100	100	6%	June and Dec.	,, 103.00
Osaka City Public Loan Bonds	100	100	6%	June and Dec.	,, 103.00
Kawasaki Dock Yards Co.'s Debentures	100	100	7%	June and Dec.	,, 104.00
Tokyo Race Associations "	500	500	30%	June and Dec.	,, 110.00
Railways & Electric Trams.					
Tokyo Railway Company, Limited	50	50	5 2/5%	June and Dec.	,, 69.30
Yokohama Electric Tramway Company, Limited	50	50	6%	July and Jan.	,, 50.95
Keihin Electric Tramway Company, Limited	50	50	6%	June and Dec.	,, 56.80
Southern Manchurian Railway Co., Ltd.	100	20	6%	June and Dec.	,, 38.00
Hanshin Electric Tramway Co., Ltd.	50	50	12%	May and Nov.	,, 121.00
Cotton Spinnings.					
Kanegafuchi Cotton Spinning Company, Limited	50	50	14%	July and Jan.	,, 105.70
Fuji Gassed-yarn Company, Limited	50	50	14%	July and Jan.	,, 99.15
Tokyo Cotton Spinning Company, Limited	50	50	5%	July and Jan.	,, 44.85
Imperial Hemp Weaving Company, Limited	50	50	12%	July and Jan.	,, 70.75
Nisshin Boseki Kabushiki Kaisha	50	12½	5%	——	,, 13.95
Sugar & Beer Cos.					
Dai-nippon Sugar Refinery Company, Limited	50	50	......	May and Nov.	,, 16.00
Ensuiko Sugar Refinery Company, Limited	50	20	20%	June and Dec.	,, 40.20
Dai-nippon Beer Company, Limited	50	50	12%	July and Jan.	,, 79.60
Kirin Brewery Company, Limited	50	50	6%	July and Jan.	,, 40.50
Docks & Steamships.					
Yokohama Dock Company, Limited	50	33	12%	June and Dec.	,, 57.00
Uraga Dock Company, Limited	50	50	......	July and Jan.	,, 10.00
Kawasaki Dockyard Company, Limited	50	50	12½%	Feb. and Aug.	,, 54.00
Nippon Yusen Kaisha	50	50	10%	May and Nov.	,, 81.00
Hokkaido Tanko S. S. Company, Limited	50	50	14%	July and Jan.	,, 34.20
Miscellaneous.					
Tokyo Electric Light Company, Limited	50	50	12%	June and Dec.	,, 94.75
Tokyo Gas Company, Limited	50	50	13%	July and Jan.	,, 101.30
Yokohama Union Electric Light Company, Limited	50	50	14%	June and Dec.	,, 93.50
Fuji Paper Mills	50	50	6%	June and Dec.	,, 34.00
Otaru Timber Company, Limited	50	50	......	March and Sept.	,, 8.00
Hoden Petroleum Company, Limited	50	50	20%	April and Oct.	,, 72.00
Tokyo Rope Manufacturing Company, Limited	50	50	18%	June and Dec.	,, 101.50
Japan Horse Improvement Company, Limited	50	50	15%	March and Sept.	,, 6.00
Tokyo Stock Exchange Company	50	50	15 1/5%	June and Dec.	,, 163.95
Osaka Electric Light Company, Limited	50	50	16%	July and Jan.	,, 131.00
Kobe Electric Light Company, Limited	50	50	14%	July and Jan.	,, 104.00

BNGKOK SHARE QUOTATIONS

(COURTESY MESSRS. EDWARDS & CO., BANGKOK, SIAM.)

NAME.	BUYERS.	SELLERS.	LAST SALES.	ESTABLISHED.	CAPITAL.	NO. OF SHARES.	ISSUE VALUE.	AMOUNT PAID UP.	RESERVE FUND	LAST DIVIDEND.
Siam Electricity Co., Ltd.	Tcs. 380	Tcs. 390	Tcs. 380	1901	£ 300,000	30,000	£ 10—	£ 300,000	Tcs. 491,338	12% Tcs. 4 bon.
Paknam Railway Co., Ltd	,, 200	,, —	,, 220	1893	Tcs. 400,000	5,000	Tcs. 80	Tcs. 400,000	,, 37,566	8%
Siam Tramway Co., Ltd	,, —	,, —	,, 140	1905	,, 1,450,000	6250 Shares 7250 Deb. 1000 P. Shares	,, 100	,, 2,230,000	,, 1,875	—
Meklong Railway Co., Ltd	,, —	,, 106	,, 105	1907	,, 2,230,000	22,300	,, 100	,, 223,000	,, 28,000	5%
Bangkok Manufact. Co., Ltd	,, —	,, —	,, 132	1898	,, 400,000	4,000	,, 100	,, 400,000	,, 60,000	7% per for 6 months
Bangkok Dock Co., Ltd	,, —	,, 135	,, 135	1865	,, 1,000,000	10,000	,, 100	,, 950,000	,, 220,000	
Siam Steam Packet Co.	,, —	,, 57	Par	1898	,, 190,000	3,800	,, 50	,, 190,000	,, 34,000	5%
Siam Commercial Bank	,, 1,050	,, —	Par	1906	,, 3,000,000	3,000	,, 1,000	,, 3,000,000	,, 338,850	8%
Menam Motor Boat Co.,	,, —	,, 100	,, 100	1905	,, 200,000	2,000	,, 100	,, 200,000	—	6%
Transport Co., Motor	,, —	,, 90	,, 100	1906	,, 200,000	2,000	,, 100	,, 200,000	—	—
Jenderata Rubber Co.*	,, —	,, £8.—	,, 90 (for six calls)	1906	£ 40,000	4,000	£ 10	£ 7.-paid	—	—
Bagan Rubber Co.	,, —	,, —	,, —	1907	Tcs. 300,000	3,000	Tcs. 100	Tcs. 40 per share	—	—
Siam Steam Navigation Co., Ltd	,, —	,, —	,, —	1909	,, 2,000,000	10,000	,, 200	—	,, 10,000	—
Siam Stone Works, Ltd.	,, —	,, 90	100	1909	,, 350,000	3,500	,, 100	,, 350,000	—	6% half year
Kombok Rubber Co	,, —	,, —	19	1906	$ 300,000	30,000	$ 100	$7, per Share	—	—

PHILIPPINE SHARE REPORT

JUNE 1ST, 1909

Name	When Incorporated	Authorized Capital	Issue Value of Share	No. of Shares	Subscribed	Paid up	Reserve	Working %	Date	Last Dividend	Closing Quotations
American Drug Store	1908	₱ 100,000	₱1,000	100	40	₱1,000	......	₱ 5,000	Jan. 4, 1909..	......	No Sellers.
*Banco Español Filipino	1851	3,000,000	200	15,000	8,439	200	₱225,000	......	......	7% for year 1908....	190 nom.
Benguet Consolidated Mining Co	1903	2,000,000	2	1,000,000	495,000	2	......	38,000	Feb. 2, 1909..	......	No Sellers.
Benguet Commercial Co., Ltd.	1908	200,000	10	20,000	7,360	10	......	......	......	7% for year 1907	₱10.
Cadwallader-Gibson Lumber Co	1908	1,000,000	100	10,000	8,650	100	......	......	......	......	No Sellers.
*Camote-Clayton Mining Co	1909	400,000	10	40,000	20,000	10	......	......	......	......	₱10.
*Compania Maritima	......	1,018,000	200	[5,090	5,090	200	......	......	......	......	₱40 buyers
*El Varadero de Manila	......	350,000	100	3,500	3,500	100	......	......	......	......	Sellers 70
Electrical Supply Co., Inc.	1909	100,000	100	11,000	500	72	......	......	......	......	No sellers
Export & Import Lumber Co	......	200,000	200	1,000	1,000	200	......	......	......	......	No sellers.
*Fabrica de Hielo de Manila	......	350,000	50	7,000	7,000	50	......	......	......	18% for year 1908...	₱80 sellers
*Germinal Cigar Factory	......	500,000	500	1,000	1,000	500	₱285,000	......	......	6% for year 1908 and 6% on capital......	750 sellers
H. E. Heacock Co	1909	100,000	100	1,000	800	100	......	......	......	First year..........	No sellers.
*Headquarters Mining Co. (Inc.)	1908	600,000	10	60,000	35,000	10	......	......	......	......	₱10.
Insular Lumber Co	1907	2,000,000	200	10,000	9,000	200	......	......	......	......	No sellers.
Juan Seiboth Co., Ltd	1908	150,000	20	7,500	500	20	......	......	......	First year..........	......
*La Concha Button Factory	......	75,000	100	750	750	100	......	......	......	10% for year 1908...	₱110 sellers.
Lambert, Springer Co	1908	200,000	1,000	200	80	1,000	......	......	......	......	No sellers.
Luzon Stevedoring Co	1909	250,000	25	10,000	4,200	25	......	......	Sept. 15, 1909	15%..........	No sellers.
Mindanao Herald Publishing Co	1907	15,000	100	150	75	100	......	......	Dec. 31, 1908.	½ of 1% interim for 1908	No sellers.
Newspaper Publishing Co	1907	400,000	100	4,000	3,740	100	......	......	......	......	......
Walter E. Olsen Co., Inc.	1909	500.000	100	5,000	2,033	100	......	......	......	First year..........	No sellers.
Paracale Gold Dredging Co	1907	£10,000	£1	10,000	9,000	£1	......	......	......	......	£1.10 s.
Palomar Park Amusement Co	1908	300,000	......	300,000	60,312	.50	......	......	......	......	₱1.
Phil. Hemp Machine Co., Ltd	1907	1,000,000	100	10,000	8,500	100	......	......	......	......	₱100
Philippine Publishing Co	1907	600,000	200	3,000	2,181	200	......	......	Mar. 1st, 1909	₱3 a share for 1908..	₱50
Port Banga Lumber Co	1908	100,000	100	1,000	934	100	None.	40,000	First Saturday in January..	None..........	No sellers.
The Philippine Gold Dredging Co	1907	200,000	10	20,000	20,000	10	......	......	......	......	No sellers.
*Philippine Co., Ltd	......	750,000	10	7,500	7,500	10	......	......	......	......	₱5 buyers.
Philippine Rosin & Turpentine Co	......	150,000	1	150,000	70,000	1	......	......	......	First year..........	......
Philippine Exploration Co	1908	2,000,000	10	200,000	90,000	10	......	......	......	......	No sellers.
The Rosenstock Pub. Co	1908	75,000	10	7,500	6,000	10	......	......	......	......	No sellers.
*San Nicolas Iron Works	......	300,000	500	600	600	500	......	......	......	......	₱200 sellers.
San Mauricio Gold Mining Co	1908	4,000,000	200	20,000	......	......	......	......	......	First year..........	No sellers.
Tarlac Railway Co	1906	150,000	100	1,500	1,500	100	......	₱9,674.75	June 30, 1908.	......	No sellers.
Union Hemp Machine Co	1909	50,000	10	5,000	2,600	10	......	......	......	......	No sellers
Zamboanga Cold Storage Co	1903	40,000	100	400	200	100	₱8,500	......	May 1st, 1909.	20%..........	₱120.

* John T. Macleod's share list.

PHILIPPINE BONDS

	Dated	Authorized	Issued	Outstanding	Par Value	Rate of Int.	When payable	Last Quotation
Philippine Friar Land Bonds	Feb. 1st, 1904	$7,000,000	$7,000,000	$7,000,000	$ 100	4%	Feb. 1, 1914	104½
Public Works and Permanent Improvement Bonds	March 1, 1905	$5,000,000	$2,500,000	$2,500,000	$ 100	4%	March 1, 1915	104½
Do.	Feb. 1, 1906	......	$1,000,000	$1,000,000	$ 100	4%	Feb. 1, 1916	104½
Manila Sewer and Water Works Improvement Bonds	June 1, 1905	$4,000,000	$1,000,000	$1,000,000	$ 100	4%	June 1, 1915	104½
Do.	Jan. 2, 1907	......	$2,000,000	$2,000,000	$ 100	4%	Jan. 2, 1917	104½
Philippine Railway First Mortgage Fourt per cent Thirty Year Sinking Fund Gold Bonds	July 1, 1907	$15,000,000	$5,736,000	$5,736,000	$1000	4%	July 1, 1937	97

*Payment of interest guaranteed until maturity or redemption by the Philippine Government.

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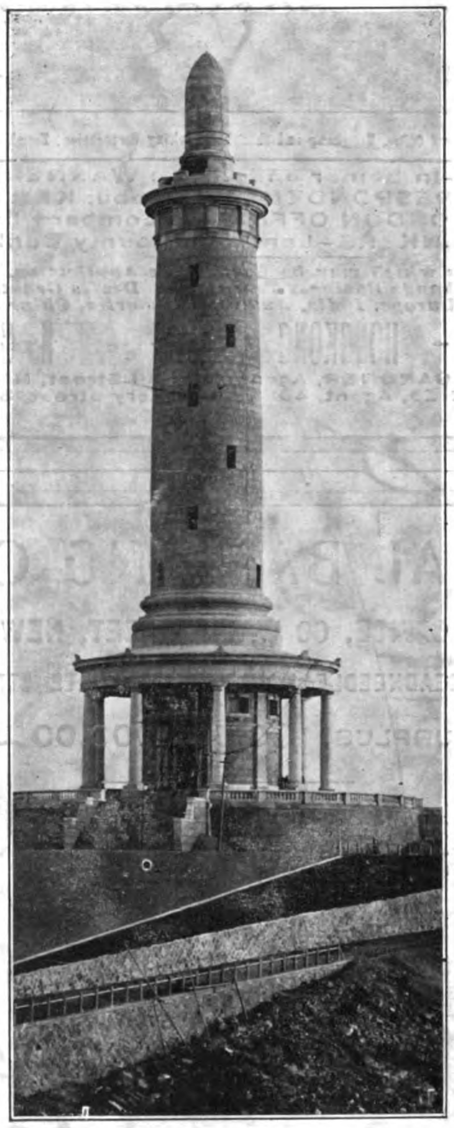

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COMMERCE ⊛ ENGINEERING ⊛ FINANCE

VOL. VI. MANILA, P. I., SHANGHAI, AND YOKOHAMA, JANUARY, 1910 No. 8.

PHILIPPINE COPRA INDUSTRY

HALVING THE COCOANUT IN THE PHILIPPINES

During the years 1907, 1908, and 1909, the export of copra from the Philippine Islands increased in value from ₱8,106,386 to ₱13,315,480 and coconut oil from ₱101,324 in 1907 to ₱315,832 in 1909. This places this product next to hemp, of which ₱31,667,154 worth was exported in 1909, in the list of products exported from the islands. Quoting from the report of the Insular Collector of Customs we find that although the proportion of the annual copra crop consumed by local oil factories has rapidly increased during the past three years, the production of the dried copra itself has also developed to such an extent that the quantity exported during 1908, amounting to 168,474,820 pounds, was 60,268,690 more than that of 1907. Buyers in France received 63 per cent of the copra exported, while 14 per cent was shipped to Spain, 6 per cent to Germany, and to the British East Indies and the United States, Belgium and Italy approximately 3 per cent each, and 2 per cent to the United Kingdom. An increase in the demand for Philippine copra was exhibited by the quantities shipped to the following principal destinations:

Country.	1907	1908
	POUNDS.	POUNDS.
France	60,055,841	104,845,547
Spain	18,785,489	24,061,930
British East Indies	3,062,203	6,650,832
United States	2,446,156	6,542,926
Italy	2,788,720	5,383,389

No direct shipments were made to the Belgian market during 1907, but during 1908 consignments thereto amounted to 5,615,309 pounds, while exportations to Germany indicated a decrease of 7,252,699 pounds from the 1907 trade.

In connection with the exportation of dried copra, the following statement of the number of pounds exported during each fiscal year from 1899 to 1908 inclusive, the value thereof and its percentage of the total value of all exports as well as the quantity and value shipped to the United States is of interest:

Fiscal year.	To all countries.		Proportion of value of total exports.	To the United States.	
	Pounds.	Value.	Per cent.	Pounds.	Value.
1999.	30,968,544	$656,870	0.047	....	....
1900.	81,749,665	1,690,897	.078	....	....
1901.	115,807,370	2,648,305	.10	227,689	$4,450
1902.	43,401,486	1,001 656	.036	104	7
1903.	215,234,046	4,472,679	.112	134,629	9,173
1904.	119,341,505	2,527,019	.07	383,680	9,231
1905.	8 ,797,227	2,095,352	.056	452,118	14,425
1906.	145,851,913	4,043,115	.123	....	....
1907.	108,206,130	4,053,193	.118	2,446,156	108,086
1908.	168,474,820	5,461,680	.166	6,542,926	228,565

Prior to 1906, practically no cocoanut oil appeared among the exports, but since the commencement of its manufacture in 1906 upon a scale large enough to more than supply the local demand, the amount shipped to other countries has increased each year, having been 105,942 gallons for 1906, 109,235 gallons for the next year and 799,239 gallons for 1908. Of that exported during 1908, 430,349 gallons went to the United Kingdom and 255,008 to the United States.

The development of the coconut oil manufacturing industry will no doubt find an impetus in the passage of the Payne Bill which not only provides free entry for the machinery and other materials into the islands but admits the oil product free of duty into the United States. The duty on coconut oil imported into the

(*Continued to page 385.*)

THE FAR EASTERN REVIEW

GEO. BRONSON REA, M. E.

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PHILIPPINE INDUSTRIAL ACTIVITY

The figures contained in the report of the Insular Collector of Internal Revenue for the year ended June 30th, 1909, indicate increased activity in every department of industry and commerce throughout the Philippines. This bureau collects all the taxes and imposts authorized by the internal revenue act, and as the greater part of the revenue is collected on a percentage basis, the results for the year may be taken as the best indication of the condition of the different industries throughout the archipelago. For instance, in 1908 the total collections from all sources amounted to ₱14,339,773 and during 1909 the collections amounted to ₱14,694,403, an increase of ₱355,000 approximately.

The revenue collected on manufactured, smoking and chewing tobacco amounted to ₱126,078.15 as against ₱110,752.50 for 1908. This increase represents an increase in output of 31,928 kilograms. It must be remembered that no internal revenue is collected on manufactured tobacco exported of which there were 26,801 kilos.

The cigar manufacturing industry is one of the most important in the islands and it is pleasing to note that during the period previous to the passage of the Payne Bill, there was a marked increase in the number of cigars manufactured not only for domestic consumption, but for export. The revenue collected on cigars consumed in the islands amounted to ₱204,849 in 1909 as against ₱195,394 in 1908. These amounts represent the tax paid on 86,800,520 cigars in 1909 and 82,989,000 in 1908. Besides these there were 115,768,500 cigars exported in 1908 and 117,849,300 in 1909 upon which no revenue tax was collected. In all, the total output for consumption and export amounted during the fiscal year 1909 to 204,649,901 cigars. The following table reviews the steady growth of the industry from 1906 when the internal revenue law went into effect and it became possible to secure definite statistics:

Fiscal year ended June 30.	Cigars manufactured and— Consumed in the Philippine Islands	Exported to foreign countries	Total
	Number.	Number.	Number.
1906........	71,181,537	94,311,542	168,5[illegible]6,079
1907........	79,476,459	117,766,660	197,248,119
1908........	82,98[illegible],278	115,768,509	198,754,787
1909........	86,800,520	117,849,381	204,649,901

The above goes to show that the purchasing power of the natives of the islands is increasing year by year and that even without the aid of special legislation, the cigar manufacturing industry had expanded more and more. With free entry into the United States for 150,000,000 cigars another impetus is given this industry and it is doubtful whether it will be possible for years to come to fill this large order for export. As may be noted the local consumption is increasing almost proportionately with the increased export and with the advance in prices for the products, the distribution of wealth will still further increase the purchasing power of the native so that while the export may increase by leaps and bounds the local consumption will continue to show a marked improvement. At the present time all the cigar factories are working up to their capacity to fill American orders and at the same time take care for the local demand.

The manufacture of cigarettes has also advanced from 3,846,690,706 in 1908 to 4,175,635,537 in 1909. As may be noted no tax was collected on the exported cigarettes, of which there was a total of 53,250,328, more than half of which went to China and the balance to Far Eastern countries and dependencies with the exception of 769,410 under the head of "All Others" and includes the United States and Europe. The export of native cigarettes to the United States is not considered of sufficient importance to give it a special head, and, as will be seen by reference to the following table, the greater part of the cigarettes manufactured are consumed locally and that the prosperity of the people is again evidenced by the increased purchasing power:

Fiscal year ended June 30.	Cigarettes manufactured and— Consumed in the Philippine Islands	Exported to foreign countries	Total
	Number.	Number.	Number.
1906........	3,509,038,750	21,062,814	3,530,101,59
1907........	3,509,999,575	158,849,812	3,668,849,38
1908........	3,774,803,310	72,387,[illegible]96	3,846,690,70
1909........	4,122,385,209	53,250,328	4,175,635,53

We quote from Collector Cromwell's report with reference to the general commercial conditions as gauged by the taxes collected on a percentage basis. He says:

"There were collected as percentage taxes during the year ₱1,276,577.46 as against ₱1,305,313.70 collected during the fiscal year 1908. Of this amount 91.5 per cent. was paid by merchants, 7.5 per cent by manufacturers, and 1 per cent. by common carriers. The percentage tax collected from common carriers produces comparatively little revenue for the reason that vessels subject to customs' tonnage dues are exempted from the tax and practically all the lines of railway are, by the provisions of their franchises, required to pay franchise taxes to the exclusion of this and other taxes.

"A falling off in collections from merchants and manufacturers of ₱28,736.24, or 2 per cent., is shown as compared with collections during the fiscal year 1908. In the principal hemp-producing provinces a decrease in collections under this head of over 16 per cent. is shown, as compared with collections during the fiscal year 1908; while in the principal sugar and coprax producing provinces increases from 8 to 23 per cent. respectively are shown. During the last half of the fiscal year 1909 there was an increase in collections from merchants and manufacturers of 10½ per cent over the receipts from that source for the same period of the preceding year, indicating an increase of about ₱20,000,000 in the gross value of goods, wares, etc. (exclusive of liquors and tobacco products), sold by merchants and manufacturers."

"There were collected during the year as taxes on deposits, capital employed, and circulation of banks ₱170,684.40, as against ₱167,892.02 collected during the fiscal year 1908. As shown by the amount of taxes assessed and collected thereon, the average monthly deposits with banks has increased from thirteen and one-quarter million pesos in 1905 to nineteen and one-quarter million pesos in 1908, not including deposits with the Postal Savings Banks. There were collected during the year as taxes on the premiums received by insurance companies ₱21,262.78, as against ₱19,456.11 collected during the fiscal year 1908.

"There were collected during the year on timber and minor forest products removed from the public forests and forest reserves ₱251,380, as against ₱211,570.62 collected during the fiscal year 1908; an increase of ₱39,809.38, or approximately 19 per cent."

A review of the above extracts may serve to encourage those who may have been pessimistic about the future of the islands. There has been no spasmodic bracing in any department of activity but a steady, healthy advance made along all lines. This is as it should be. And when we remember that up to the end of the fiscal year, the Philippines were without any special market for their products, we may hope for much in the future with an unlimited demand for sugar and tobacco sure to be followed by the development of other native industries and an increase in the export of all tropical products.

We believe that the Philippines is on the threshold of a prosperous era that will be unprecedented in the history of tropical countries, one in which there will be the greatest possible opportunity for participation in its benefits by all the people.

PROMINENT AMERICAN JOURNALIST VISITS THROUGH ORIENT

Among the passengers on the s.s. Minnesota on its voyage from Seattle to the Far East was Mr. J. Newton Nind of Chicago, one of the most distinguished of American journalists, who is enjoying a leisurely trip round the world, accompanied by Mrs. Nind, after forty years of continuous activity in editorial capacity. He is the dean of American trade paper editors, and is identified with the development of the trade paper from its inception to the important position it now occupies among the leading publications of the world. This recognition has been won by a body of editors in the United States of whom Mr. Nind is a prominent leader. He is greatly interested in the development of American trade in the Far East and has not been idle while in Japan, China and the Philippines in securing data that will prove of great practical value to the American manufacturer.

Mr. Nind believes that American commercial distributing stations at Manila would prove of greater value in furthering better understanding in the Far East than the maintenance of coaling stations. In an interview published in the Manila *Bulletin* he said:

"The thing that has struck me most forcibly since I left Seattle last month is the impress that Great Britain and Germany have made in the Orient, and it seems to me that unless the American producers get busy, and very busy at that, within a very short time, the markets of the Far East are going to be lost to them.

"There can be not the slightest doubt in the mind of anyone who studies the commercial situation in this part of the world, even in the most superficial way, that the two countries I have mentioned have started out in a most determined and systematic way to control the trade of the Orient, and neither can it be denied that they are doing this very thing. "I have been very favorably impressed with all I have seen since I have been in this port, and I have made the most of every minute of my time in gathering information that will enable me to place real conditions in the Philippines before the Chicago Association of Commerce upon my return in June. I believe that it would be the best thing in the world for a party from that organization to come to the Philippines and make a first-hand study of the situation. It would result in the members getting the right idea of the situation. If we are to get into this wide world commercial game at all, we must begin at once, and while I do not claim to be the first person to ever say so, it is my opinion, and I shall emphasize this point upon my return home, that the American business people ought to use Manila as a distributing point for the purpose of supplying the Orient.

"I believe, also, that we should have closer communication with the United States. This thing of starting a ship from San Francisco and letting it meander all along the Japan and China coasts should soon be a thing of the past, and I believe it will be. The idea of a ship subsidy is growing a great deal faster in the United States than you might think it is away out here. The people in the central part of the United States, people who never saw an ocean, are beginning to realize what such a subsidy means for American commerce, and they are going to have a voice in the matter.

"I can recall very vividly the odium that was cast upon Secretary Seward when he purchased Alaska. Is there anyone who would say now that the United States made a bad bargain? And as surely as that purchase has been approved over and over again, just so surely will the people of the United States within a very few years congratulate themselves upon the possession of the Philippines.

"I intend to write considerably about the Philippines upon my return to the United States, as well as make several addresses, and I shall lose no opportunity to do my best to see to it that the American manufacturers are informed regarding the great importance of getting into this Far Eastern commercial game."

THE NEW AMERICAN MINISTER TO PEKING

From every section of the United States come expressions of approval of the selection of Mr. Wm. J. Calhoun, by President Taft, for the post at Peking. A prominent journalist from Chicago on a tour of the Far East, who has known Mr. Calhoun for years, expressed the highest regard for his ability and stated that the new minister is fully qualified for the position. He stated that not only is Mr. Calhoun discretion itself, but he is known among a wide constituency for his firmness and tact. His career as a lawyer has been imminently successful, and while he has not served the country in a national capacity, excepting as a commissioner to Cuba to inquire into the death of an American in a Cuban jail, and, later, as a member of the Interstate Commission, he proved his ability in these capacities and enjoys the confidence of the administration. The commercial bodies of the United States feel that they are entrusting their interests in China to the right man, and that, in maintaining cordial relations with the Empire, Minister Calhoun may be depended upon to do his share, and do it well.

Mr. Calhoun is sixty-one years of age; is a native of Pittsburg, Pa.; and was educated in Ohio. He practised law in Danville, Ill., for a number of years and later established himself in Chicago where his abilities were soon recognized, and for years he has been associated with the leading progressive commercial organizations of that city. His wife died about ten years ago.

It has been a source of disappointment to the many foreign and American friends of Consul General Charles Denby that President Taft did not reconsider his claim to this promotion and especially so since the appointment of a man trained in the service in China and not only familiar with the Chinese customs and language, but in sympathy with their aspirations, seems so necessary at this time. However, it seems that other interests have obscured for the time being the hard-earned claims of Mr. Denby, but we believe he will yet secure the recognition he deserves.

However, the selection of Mr. Calhoun from among those who stand for the best in civil life in the United States is one that will prove a credit to the nation, and we believe the new minister will find generous and loyal support from all Americans in China in carrying out the wishes of the administration and in strengthening the friendly ties existing between the two peoples.

FIRST STEP TOWARDS CONSTITUTIONAL GOVERNMENT FOR CHINA

The inauguration of provincial assemblies in 22 provinces of the Empire of China, October 14th, was the first step in the redemption of the pledge of reform and the promise of constitutional government for China by the Throne during the last reign. Three decrees, issued on September 20, 1907, October 19th, 1907, and July 22nd, 1908, respectively, by the late Empress Dowager, were the results of a constitutional movement that began in 1905. A committee had toured the world investigating liberal forms of government, and, upon its return, in 1906, reported favorably on a constitution and parliamentary representation at the earliest possible date as the means of greatly benefiting the country. Duke Tsai Tse gave the movement his unqualified endorsement. The Empress Dowager in a decree on September 1st, 1906, declared for reform and gave a promise of a constitution in a few years. This indefinite announcement was followed by an edict in February 18th, 1907, to the effect that, owing to the great dangers overhanging the Empire, a constitution and parliament would be granted to the country." On September 20th, 1907, this was supplemented by a decree directing the establishment of an assembly of ministers in Peking to prepare the foundations for constitutional government. Again on October 19th of the same year the late Empress Dowager announced that, besides the Assembly of Ministers, Provincial Assemblies should be organized, the members to be selected by the Viceroys and Governors, and the Imperial Assembly would be selected from the provincial bodies. At the same time local representative governments would be established in the districts. On July 22, 1908, regulations governing the provincial assemblies were drafted and published. They take on the duties of advisory boards, and their functions are mainly to slowly educate the Chinese in the duties and responsibilities of citizenship under a liberal and representative government. At the end of eight years from the date of the inauguration of the assemblies, a constitution will be promulgated and a national parliament of two houses convened.

This means of arriving at a constitutional form of government is along the lines followed by the Japanese, and the legislative bodies convened at Peking in 1917 will greatly resemble the representative bodies at Tokyo.

Reports from the different provincial bodies convened on October 14th indicate that the position of the central government has been greatly strengthened by the redemption of pledges made in the direction of representative government. The members of these assemblies were generally intelligent and patriotic Chinese, the proceedings conducted with marked dignity and gave evidence of the appreciation of its members of the important character of the work before them. The general impression is that these assemblies, besides preparing the way to greater participation on the part of the Chinese in governmental function, will serve to unite the many different elements that go to make up the vast empire in a common patriotic cause. And this is the greatest need of China in the preservation of her entity and development of her future greatness.

THE PORT ARTHUR MONUMENT

(Dairen, Nov. 28th, 1909.)

The colossal tower, dedicated to the memory of the 22,000 Japanese killed during the eight months' siege of Port Arthur, was unveiled today. Erected at the top of Monument Hill near the Charnel Shrine, the column from a distance takes on the appearance of a huge siege gun, with its breach in the earth, and a shell just leaving the muzzle.

The unveiling ceremonies, presided over by Admiral Count Togo and General Count Noji, the heroes of the late war, were attended by immense throngs of Japanese and foreigners from all parts of Manchuria.

The Promoters of the Monument were: Admiral Count Togo and Gen. Count Nogi.
Designers & Advisors.—Drs. Ishiguro and Watanabe.

Engineers in charge.—Lieut-Col. Hattori and Naval Engineer Okudaira.

Voluntary Subscriptions—over -Y-260,000.
Estimated Expenses of Construction—Y-230,-000.

Work started on 3rd July, 1907.
Work completed on 12th Nov., 1909.
Height of the Pedestal—15.9 ft.
Height of the Tower—161.1 ft.
Height of the Crown—12 ft.
Height of the Shell—29 ft.
From bottom to Top—218 ft.

The difficulties that confronted the engineers in charge of the construction of this monument were several. The hilltop selected for the site is of narrow compass and stands 408 ft. above the sea-level. Then the whole of the hill itself is made up of rocky substance and is bereft of all growths except weeds. Besides the gradient on all sides is very steep which fact makes the summit accessible only by the roads of which there are three—the West, the South, and the East. It required a lot of preliminary labors before the work proper could be started. Among them may be mentioned the establishment in one of the glens on the western side, of a concrete-block yard which was connected with the top by an incline and with the Naval Pier by light rail. The absence of water supply anywhere on the hillsides presented still another difficulty which was overcome by excavating a reservoir near the Concrete Block Yard.

PHILIPPINE COPRA INDUSTRY

(Continued from page 383.)

United States averaged ₱0.02 a pound, while the duty on the machinery into the islands averaged over 10% ad valorem. As a result of these favorable conditions a project is now under consideration by a number of leading American capitalists to instal a large plant for the manufacture of the oil as well as to develop the manufacture of by-products of the copra. utilized for the manufacture of oil which is used largely in the manufacture of soap, candles, and medical preparations. Besides these purposes the oil in a highly refined state is used in the manufacture of butter, an industry which has reached a high state of perfection in Marseilles, France.

Marseilles imports almost all her copra from the Philippines and leads in the manufactuer of oil and by-products of the coconut. In 1909 copra to the value of ₱7,804,000 was shipped to Marseilles, and in 1908, it reached a value of ₱6,932,000.

It is believed, however, that the manufacture of the oil in the Philippines is more desirable than the establishment of manufacturing plants abroad for the reasons heretofore referred to. In connection with the encouragement of this industry by the Philippine Government the following extract is taken from a bulletin issued by the Bureau of Agriculture having special reference to the method of pre-

COCONUT RAFT FROM LAGUNA DE BAY TIED UP IN AN ESTERO IN MANILA

The promoters have in view the investment of about ₱600,000, and there is every reason to believe that this enterprise will be the pioneer of great activity in this line of endeavor.

The temperature of the islands is adapted to the manufacture of oil most economically as it is necessary to maintain artificially a high temperature where the manufacture is carried on in the temperate zone in order to secure the best results. Among the items of cost in which saving may be made by having the plant in Manila is that of transportation. The freight on copra shipped abroad is greatly in excess of that paid on the oil product and is another point being considered favorable to local manufacture of the oil and by-products.

The origin of the coconut palm is unknown. According to De Candolle (Origin of Cult. Plants), the Philippine Islands are believed to be the original home and birthplace of the palm which was later carried to the territory south and west by ocean currents. A recent bulletin of the Bureau of Agriculture places the number of varieties of the coconut palm found in the Philippine Islands at 19, each of which has some marked distinction from the others. The islands of the Visayas and the provinces of Tayabas, Batangas, and Laguna produce the greater portion of the copra in the islands, but it may be grown successfully in almost every section of the archipelago.

The two distinct products of commercial value of the palm are the meat, which when dried is called copra, and the husk which is known as coir commercially. The former is

GROUP OF SPROUTED COCONUTS

SPADING GROUND FOR COCONUT CULTIVATION

practically without sale or value here. The residue from the mill may be utilized both for food and for manure by the oil maker who is a tree owner and who maintains cattle. For either of these purposes its value rates closely up to cotton-seed cake, and the time is not remote when it will be recognized in the Philippines as far too valuable a product to be permitted to be removed from the farm excepting at a price which will permit of the purchase at a less figure of an equivalent in manure. So active are the copra buying agents in controlling this important branch of the industry, that they refuse to buy the press cake at any price, with the result that in two instances known to the writer they have forced the closure of oil-milling plants and driven the oil maker back to his copra.

"Many copra-making plants in India and Ceylon are now supplied with decorticating, breaking, and evaporating machinery. The process employed in this archipelago consists in first stripping the ripe fruit of the outer fibrous husk. This is effected by means of a stout, steel spearhead, whose shaft or shank is embedded firmly in the soil to such a depth that the spear point projects above the ground rather less than waist high. The operator then holds the nut in his hands and strikes it upon the spear point, gives it a downward, rotary twist, and thus with apparent ease quickly removes the husk. An average operator will husk 1,000 nuts per day, and records have been made of a clean-up of as many as 3,000 per day. The work, however, is exceedingly hard and involves great dexterity and wrist strength.

"Another man now takes up the nut and with a bolo strikes it a smart blow in the middle, dividing it into two almost equal parts. These parts are spread out and exposed to the sun for a few hours, or such time as may be necessary to cause the fleshy albumen to contract and shrink away from the hard outer shell, so that it may easily be detached with the fingers.

"Weather permitting, the meat thus secured is sun dried for a day and then subjected to the heat of a slow fire for several hours. In some countries this drying is effected by hot-air driers and a very white and valuable product secured; but in the Philippines the universal practice is to spread out the copra upon what may be called a bamboo grill, over a smoky fire made of the shells and husks, just sufficient heat being maintained not to set

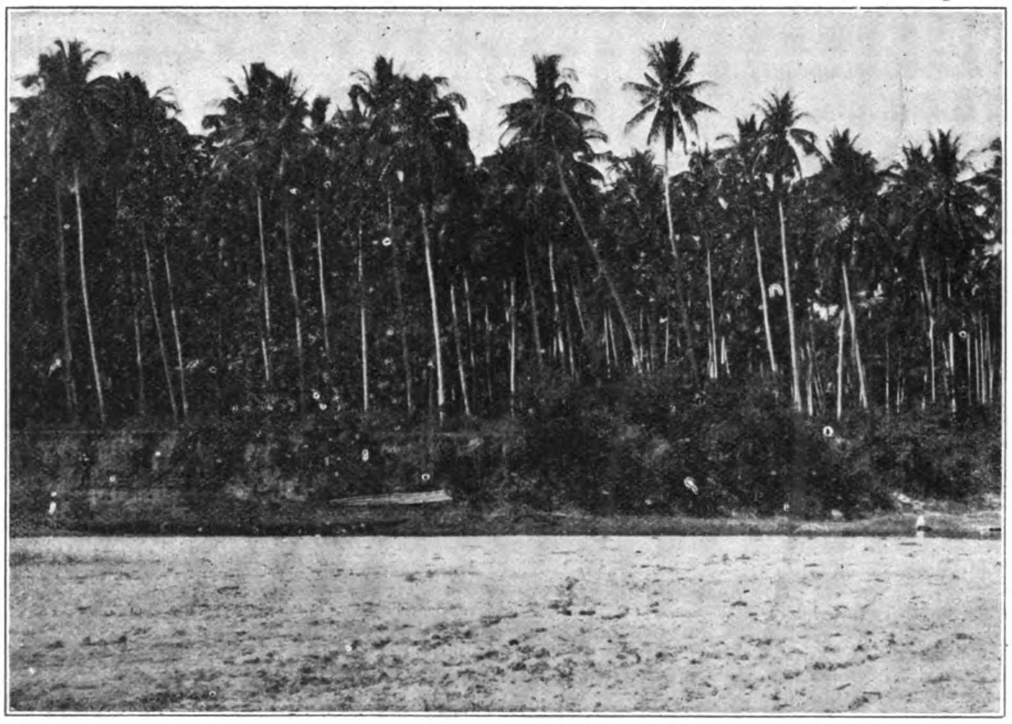
paring the copra and other products and based on local experience presents the difficulties in the way of the small oil manufacturer:

"(1) An oil-milling plant, constructed with due regard to economy of labor and the production of the best quality of oil, would involve an outlay of capital of $2,500 gold, and upward, according to capacity. The production of copra requires the labor of the planter's hands only.

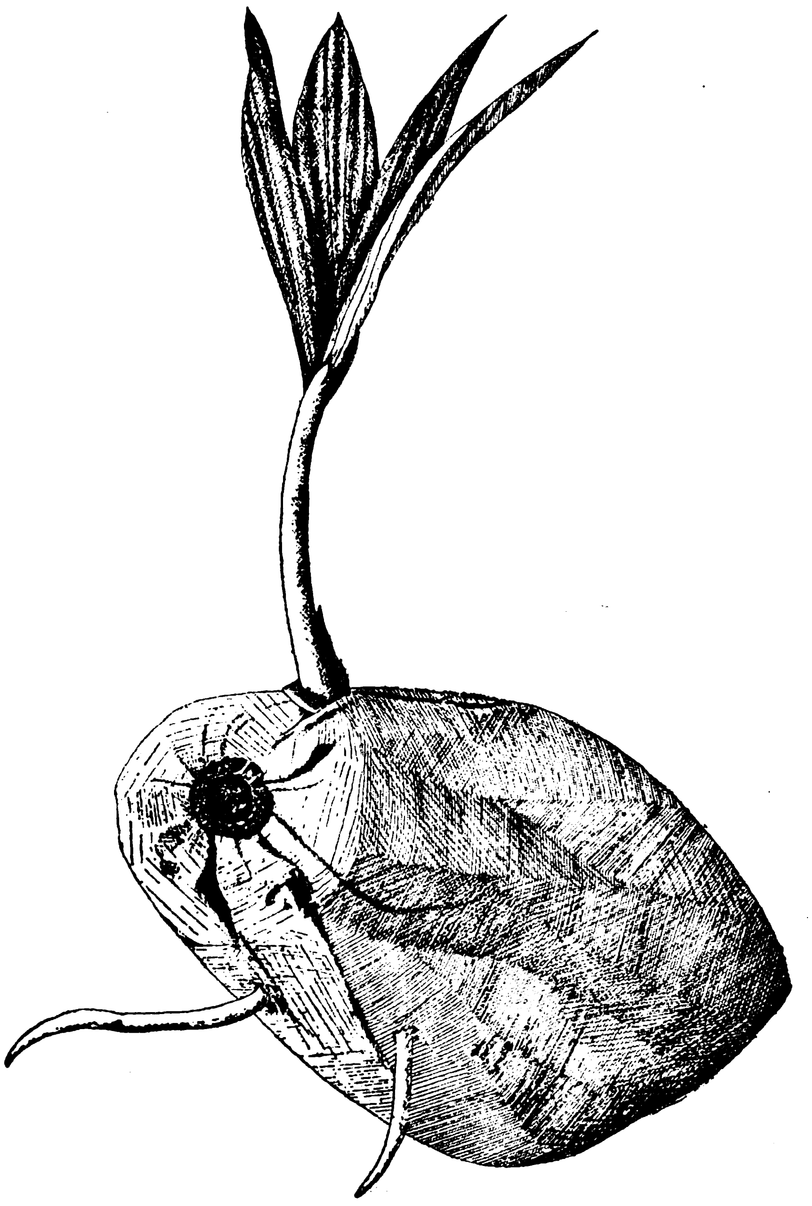
"(2) The oil packages must be well-made barrels, casks, or metallic receptacles. The initial cost of the packages is consequently great, their return from distant ports impracticable, and their sale value in the market of delivery is not sufficient to offset the capital locked up in unproductive form. On the other hand copra may be sold or shipped in boxes, bags, sacks, and bales, or it may even be stored in bulk in the ship's hold.

"(3) When land transportation has to be considered, the lack of good roads still further impedes the oil maker. He cannot change the size and weight of his packages from day to day to meet the varying passibility of the trail. On the other hand packages of copra may be adjusted to meet all emergencies and the planter can thus take advantage of the market conditions which may be denied to the oil maker.

"(4) Perhaps the most serious difficulty the oil maker has to contend with is the continuous discouragement he encounters from the agent of foreign factories who buys in the open market and, bidding up to nearly the full oil value of the copra, finds an ample manufacturer's profit paid by the press cake so valuable abroad but



TYPICAL COCONUT GROVE IN LUZON



GERMINATION OF THE COCONUT

fire to the bamboo. The halves, when dried, are broken by hand in tostill smaller irregular fragments and subjected to one or two days of sun bath. By this time the moisture has been so thoroughly expelled that the copra is now ready to be sacked or baled and stored away for shipment or use.

"All modern coconut-oil mills are supplied with a decorticator armed with revolving discs that tear or cut through the husk longitudinally, freeing the nut from its outer covering and leaving the latter in the best possible condition for the subsequent extraction of its fiber. This decorticator is fed from a hopper and is made of a size and capacity to husk from 500 to 1,000 nuts per hour.

"Rasping and grinding machinery of many patterns and makes, for reducing the meat to a pulp, is used in India, Ceylon, and China; and although far more expeditious, offer no improvements so far as concerns the condition to which the meats are reduced over the methods followed in the Philippines. Here the fleshy halves of the meat are held by the hand against a rapidly revolving, half spherical knife blade which scrapes and shaves the flesh down to a fine degree of comminution. The resulting mass is then macerated in a little water and placed in bags and subjected to pressure, and the milky juice which flows therefrom is collected in receivers placed below. This is now drawn off into boilers and cooked until the clear oil is concentrated upon the surface. The oil is then skimmed off and is ready for market.

"The method outlined above is very wasteful. From general observation the processes in use are very inadequate, and it is estimated that not less than 10 per cent of the oil goes to loss in the press cake. This is a loss that does not occur in establishments equipped with the best hydraulic presses. It is true that very heavy pressure carries through much coloring matter not withdrawn by the primitive native mill, and that the oil is consequently darker, and sooner undergoes decomposition; but modern mills are now supplied with filtration plants through which this objection is practically overcome.

"The principles of the above process are daily reproduced in thousands of Filipino homes, where the hand rasping of the nut, the expression of the milky juice through coarse cloth, its subsequent boiling down in an open pan, and the final skimming off of the oil are in common practice. Notwithstanding the cheapness of labor, it is only by employing a mill well equipped with decorticating, rasping, hydraulic crushing, and steam-boiling machinery, and with facilities to convert the residue to feeding or other uses, that one may hopefully enter the field of oil manufacture in these Islands in competition with copra buyers.

"COIR.—The fiber of the coconut husk, or coir, as it is commercially known, has never yet been utilized in this Archipelago, excepting occasionally for local consumption.

"Second in value only to the copra, this product has been allowed to go to waste. The rejected husks are thrown together in immense heaps, which are finally burned and the ashes, exceedingly rich in potash and phosphoric acid, are left to blow away.

"As the commercial value of the fiber is greater than the manurial value of the salts therein, it is economy to utilize the fiber and purchase potash and phosphoric acid when needed to enrich the soil.

"Highly improved and inexpensive power machinery for the complete and easy extraction of he fibers of the husk, either wet or dry, is town rapidly superseding the tedious hand process once in such general use.

"The husk-crushing mill breaks, crushes, and flattens out the husks by means of powerful, fluted metal rollers and, in the fiber extractor the broken husks are fed over a revolving drum set with teeth especially devised for tearing out the fiber from the entire mass Finally, it is fed into one of the many forms of 'willowing' machines, which reduces the mass to clean fiber, which is now ready for grading, baling, and shipment. The residual dust and waste from this operation may be used as an absorbent for liquid manures, and ultimately returned to the plantation. The yield of fiber varies from 12 to 25 quintals of coir and 4 to 7 quintals of brush fiber per 10,000 average husks. In the Philippines the nuts yield a large amount of fiber and a relatively small percentage of chaff and dust. With improved machinery and careful handling, 18 quintals of spinning coir and 5 quintals of bristle fiber from every 10,000 husks is a fair estimate of the product.

"As the cost of manufacture is generally rated at one half the selling price, and as we must add a further charge of 20 per cent to cover freight and commission, we have resulting from the sale of the 23 quintals, or 2,300 kilos, at £16 per English ton, a balance of £11 11s. per hectare.

"But there are other considerations which should not be overlooked. The husks of 10,000 coconuts will withdraw from the land 61.5 kilos of potash and 3 kilos of phosphoric acid, and the restoration of the full amount is called for to compensate for the growing wants of the tree, in addition to that withdrawn by the crop. The necessary fertilizers are worth, approximately, 5½d. per kilo, making a further reduction of £1 8s. and leaving as a net profit £10 3s, or reduced to American money, nearly $50, gold, per hectare.

"The machines above referred to will cost $800, gold, and $1,200 additional will purchase and house the power necessary to operate them. Such a plant will work up 1,000 nuts a day, and handle in a year the output of a grove of 30 hectares. With the addition of two or more fiber extractors the capacity of the plant may be doubled without material expense, and it should rather more than pay its entire cost in one year.

"TUBA.—Tuba is the fresh or mildly fermented sap drawn from the inflorescence of the coconut.

"There are no figures or data of any kind available as a basis for an estimate as to the importance of this product, but its extent may be inferred from the fact that the outlying groves about Cebu, Iloilo, and the larger Visayan towns are practically devoted to the production of tuba, and not to the manufacture of copra.

"Tuba is collected from the unexpanded blossoms as soon as they have fairly pushed through the subtending bracts. To prevent any lateral expansion, the flowers are tied with strips of the green leaf blade and then, with a sharp knife, an inch or two of the extreme tip is removed. The whole flower cluster is now gently pulled forward until it arches downward. In a day or two the sap begins to drip and is then caught in a short joint of bamboo, properly secured for the purpose.

A HEALTHY COCONUT PALM

it is best to select land near the seashore and not extending inland more than 2 or 3 miles. Within this narrow zone there is commonly a deposit of rich, permeable, well-drained alluvium offering soil conditions of far greater importance to successful tree growth than the mere exposure to marine influences. The success that has followed coconut growing in Cochin China, remote from the seaboard, in Annam and up the Ganges basin one hundred or more miles from the coast, and in our own interior Province of Laguna, definitely proves that immediate contiguity to the sea is not essential to success.

"That the coconut will grow and thrive upon the immediate seashore, in common with other plants, is simply an indication of its adaptability to environment. That it is at a positive disadvantage as a shore plant may be determined conclusively by anyone who will examine the root system of a seashore-grown tree upturned by a wash or tidal wave, and one uprooted from any cause, farther inland. It will be seen that the root system of the maritime plant is immensely larger than the other, and that a corresponding amount of energy has been expended in the search through much inert material to forage for the necessary plant food which the more favored inland species has found concentrated within a smaller zone.

"The planting *must* be made in a thoroughly permeable soil.

"The thick, fleshy roots of the newly upturned palm are loaded with water, and tell us that an inexhaustible store of this fluid is an indispensable element of success. If further evidence of this were required, the testimony of drooping leaves and of crops shrunken from one-half to two-thirds, throughout the cocoanut districts and upon our own orchard in Mindanao, as the result of drought, confirm it and bespeak the necessity of copious water at all times.

"The living tree upon the sea sands further emphasizes this necessity; for, while its roots are lapped by the tides, it never flags or wilts, and from this we may gather the added value of a site which can be irrigated. The careful observer will note that along miles of sea beach, among hundreds of trees whose roots are either in actual contact with the incoming waves, or subjected to the subterranean influence of the sea, there will never be so much as one tree growing in any beach

"As a healthy tree develops at least one or more flowering racemes every month, and the flow of sap extends frequently over a period of two or more months, it is not uncommon to see a number of tubes in use upon one tree.

"The workman usually visits the tree twice daily to collect the liquor drawn during the preceding twelve hours in the larger tube, which he carries upon his back. He slices daily a thin shaving from the tip of the flower, in order that the wound may be kept open and bleeding. This process is kept up until nearly all of the flower cluster has been cut away, or until the sap ceases to flow.

"More than a liter a day is sometimes drawn from one tree, and 5 hectoliters is considered a fair annual average from a good bearing tree.

"In its fresh state tuba has a sweetish, slightly astringent taste; but, as the vessels in which it is collected are rarely cleaned, they become traps for many varieties of insects, etc., and it is, therefore, not a very acceptable beverage to a delicate stomach. When purified by a mild fermentation it is far more palatable.

"A secondary fermentation of tuba results in vinegar, and on this account, chiefly, so much space has been devoted to this feature of the industry. The vinegar so produced is of good strength and color, of the highest keeping qualities, and of unrivaled flavor. Its excellence is so pronounced that upon its inherent merits it would readily find sale in the world's markets; and although the local demand for the tuba now exceeds the production, its conversion into vinegar will probably prove the more profitable industry in the future.

"Spirits are distilled and in some places sugar is still made from the flower sap; and, while the importance of these great staples may not be overlooked, their commercial value as products of this tree are relatively insignificant.

"CULTIVATION.—SELECTION OF LOCATION.—In the selection of a site for a coconut grove

GATHERING TUBA

A STAPLE CROP OF COCONUTS IN THE PHILIPPINES

basin which collects and holds tidal water for even a brief time; and that, notwithstanding the large number of nuts that must have found lodgment and favorable germinating influence in such places, none succeed in growing. From this we may derive the assurance that the desired water must be in motion and that land near stagnant water, or marsh land, is unsuitable to the plant.

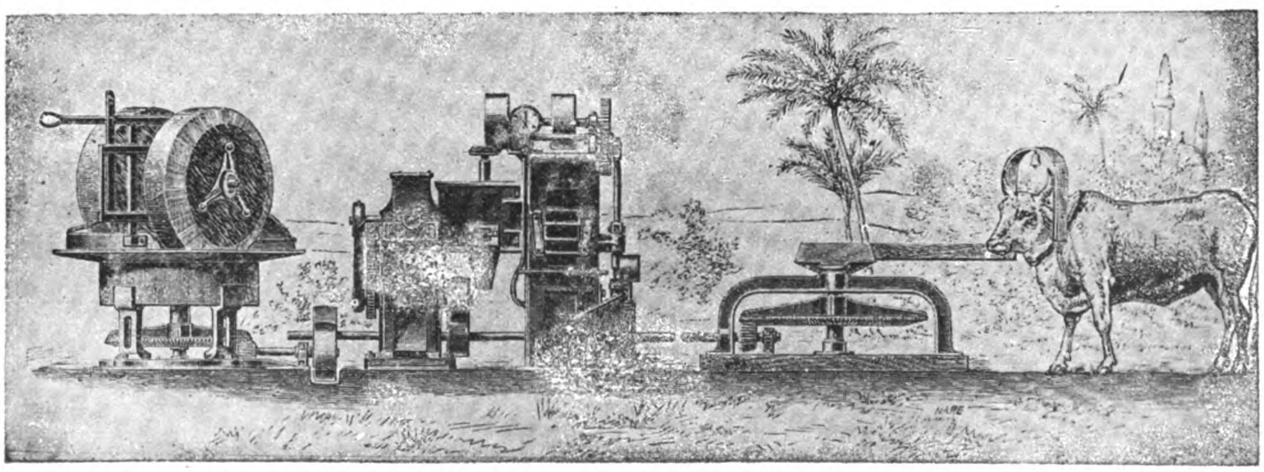
"It may frequently be observed that trees will be found growing fairly thriftily upon mounds or hummocks, in places invaded by flood or other waters which, by reason of backing or damming up, have become stagnant. An examination of the roots of an overthrown tree in such a locality will show that all of those in the submerged zone have perished and rotted away, but that such is the vitality and recuperative energy of the tree that it has thrown out a new feeding system in the dryer soil of the mound immediately surrounding the stem, which has been sufficient to successfully carry on the functions of nutrition, but altogether ineffective to anchor the tree securely, or to prevent its prostration before the first heavy gale.

"While this phase of the question will receive more attention when we come to consider the chemistry of suitable manures, it may be said that, although analysis of the coconut ash derived from beach-grown nuts shows a larger percentage of those salts that abound in sea water than those grown inland, yet the equal vigor, vitality, and fruitfulness of the latter simply confirm the plant's exceptional adaptability to environment and ability to take up and decompose, without detriment, the salts of sea or brackish waters. As a victim to the maritime idea, the writer in 1886 planted, far inland, several hundred nuts in beds especially devised to reproduce littoral conditions; shore gravel, sea sand, broken shells, and salt derived from sea water being used in preparing the seed beds. The starting growth was unexcelled. Then came a long period of yellowing decline and almost suspended animation, ultimately followed by a complete restoration to health and vigor. The early excellent growth was due to the fact that the first nourishment of the plant is entirely derived from the endosperm, and careful lifting of the young plants disclosed the fact that recovery from their moribund condition was, in every instance, coincident with the time that the roots first succeeded in working through the unpalatable mess about them into the outlying good, sweet soil.

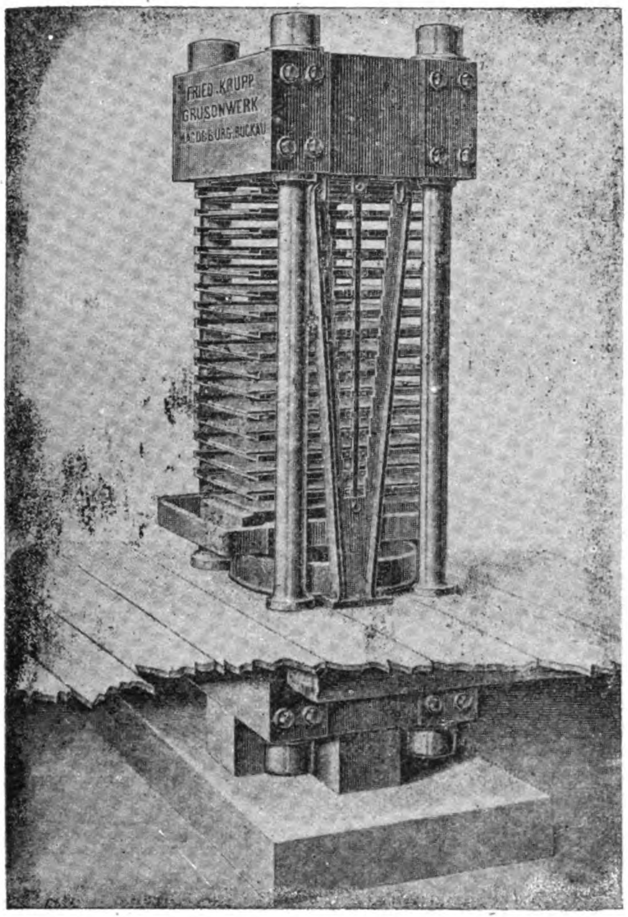
"The exposure of the plantation is an important consideration, and a marine site should be selected in preference to one far inland, unless it be on an open, unprotected flat, exposed to the influence of every breeze or the fiercest gales that blow.

"The strucutre of the coconut seems well fitted to endure winds of almost any force, and that a remarkably abundant and strong circulation of air is essential to its best development is well shown by comparing a tree subjected to it with the wretched, spindling specimen growing in a sheltered glen or ravine.

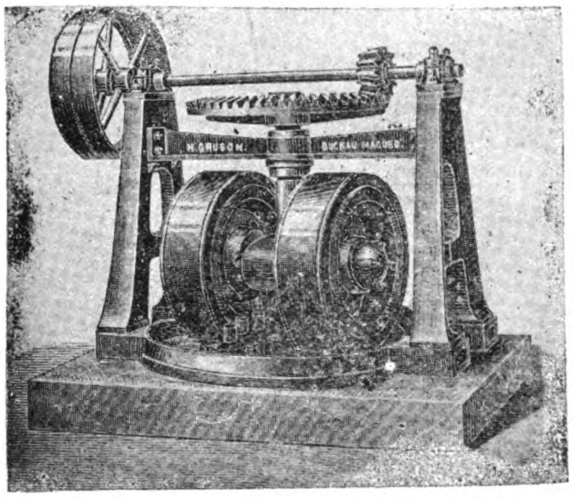
"Strong confirmation of this may be found within the artificial environment of a plant conservatory, where it is feasible to reproduce, in the minute detail of soil, water, temperature, and humidity, every essential to its welfare except a good, strong breeze. As a consequence, the palm languishes, and it has long been deemed, on this account, one of the most rebellious subjects introduced into palm-house cultivation."



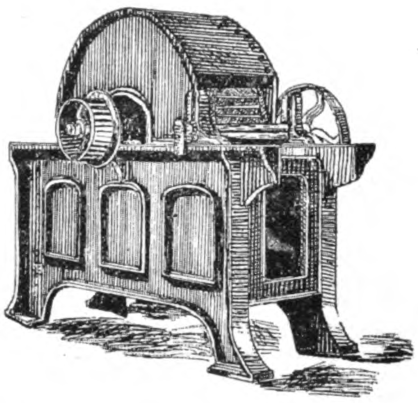
COMPLETE OIL MILL FOR COPRA AND OTHER PRODUCTS EASILY TRANSPORTED, MANUFACTURED BY ROSE, DOWNS AND THOMPSON, HULL, ENGLAND



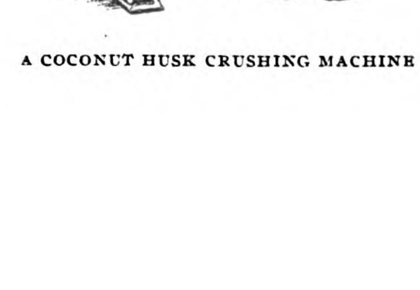
HYDRAULIC PRESS FOR OIL EXTRACTION



BELT DRIVEN EDGE, STONES FOR CRUSHING COPRA SEEDS, ETC.



A COCONUT EXTRACTING FIBER MACHINE



A COCONUT HUSK CRUSHING MACHINE

The Philippine Bureau of Science has carried on extensive investigations with reference to the cultivation of the palm with a view to securing the best results. These investigations are included in a bulletin issued by the Bureau of Science, which should prove of the greatest practical value to those interested in the different branches of the growing and manufacturing industry, connected with the coconut palm and its product. The introduction by Dr. Paul Freer, Director of the Bureau, explains its purpose and reviews the result of the investigations of the different divisions of the Bureau. He says:

"Investigations on the subject of the coconut palm (*Cocos nucifera*) have been carried on in the Bureau of Government Laboratories, the work divided into three parts and brought to its present state by cooperation between several divisions of the institution. The first portion covers the water relations of the tree from the standpoint of its physiology, by Dr. Edwin Bingham Copeland, who spent several months on a plantation studving this question from an experimental standpoint. The second paper covers the coconut in its relation to the cultivation of the tree and the production of coconut oil, and includes a study of the deterioration both of the copra and the oil by reason of rancidity caused by molds and bacterial growth, by Herbert S. Walker; and in conclusion there is added a study of the insects which attack the plant, together with suggestions as to the best means of combating their depredations, by Charles S. Banks and William Schultze.

"By this union of the laboratory work, the study of this most important tropical tree has been carried to an extent which not only will enable the conclusions to be of great value to planters but which will also have a scientific interest forthose who are not immediately interested in coconut production. One topic which is of special importance is still under investigation and not ready for publication. This is the study of the germinating nut together with the transformation which the oil undergoes during the growth of the embryo. This topic offers an opportunity for the study of the enzymes in a germinating plant which is unsurpassed, as the size of the seed of the coconut and the ease with which it is separated into its various constituent parts brings a certainty of results not to be encountered in other instances. This portion of the investigation is now being followed in the chemical laboratory. When the serial on the subjects mentioned above has been completed it will be published as a separate reprint.

"San Ramon Government Farm, where most of these investigations were carried on, lies on the west coast of Mindanao 10 miles north of the town of Zamboanga. It extends for about 2 miles along the seacoast and toward the interior for 3 or 4 miles, to the base of a small range of densely wooded mountains, which forms an admirable watershed.

"Four small streams run through San Ramon from the mountains to the sea. It is very probable that there is considerable underground drainage as well, for fresh water may be obtained at a depth of 5 or 6 feet almost anywhere along the shore, even at the edge of the beach. At present copra and hemp are the principal products of the farm, together with a little cacao.

"At the time of writing all the coconut trees used for making copra at San Ramon were planted by the Spanish, but large numbers of new ones are being set every year from selected seed, for which only the largest and best nuts are taken. They are laid out on the ground in a sheltered place and a small section

of husk is cut from the top of each to afford a more easy egress for the sprout. At the end of about six months' time, when the sprout is from 2 to 3 feet high and the nut has just begun to take root in the ground, it is ready for planting. For this purpose a hole about 2 feet deep is prepared and the young plant is firmly packed with the soil, so that the sprout stands erect and the top of the nut is 6 to 10 inches below the surface. As a protection against wild hogs it has of late been the custom to dig a pit 4 or 5 feet deep and to plant the nuts at the bottom of this. The seedlings are set out in straight rows, allowing a space of about 10 meters between each plant.

"After planting, the young coconut requires very little care, except to keep it free from weeds and the attacks of animals and insects, until it reaches maturity. The average time before a tree begins to give a good yield of fruit may be set at ten years. Instances have been known when bearing commenced as early as the fifth year, but these are of rare occurrences and under exceptionally favorable circumstances.

"The process in use for preparing copra is very simple. The nuts are gathered by natives, who climb the trees, cut off the ripe or nearly ripe fruit, and let it fall to the ground. No especial care is taken to prevent damage by falling. The nuts are then piled in a heap and allowed to stand for a few weeks before being opened. To remove the outer, fibrous husk the natives make use of a heavy spearhead firmly sunk in the ground. They force the nut down on the sharp point until it penetrates to the shell, then, by a peculiar twist, strip off the husk, a portion at a time. One man can husk, on an average, 1,000 nuts per day.

"After being thus prepared the coconuts are split in halves by a couple of sharp blows from the back of a bolo. The milk is allowed to go to waste on the ground.

"DRYING.—The simplest method of drying the meat is to spread out the halves of the coconut on large wooden trays, face up, in the sun. At night and in case of rain the trays are piled under a shed. After standing in the sun for two or three days the meat becomes partially dry and has shrunken sufficiently to permit its removal from the shell. It is then put back on the trays and again exposed for a few days until it is thoroughly desiccated.

"The other method of preparing copra in use at San Ramon is to pile the coconut halves, face downward, on a bamboo grating over a slow fire of husks which is burning in a thick-walled brick kiln about 6 feet high, the whole being inclosed in a large shed. By this arrangement it is sufficient to dry the nuts over night before removing the shells.

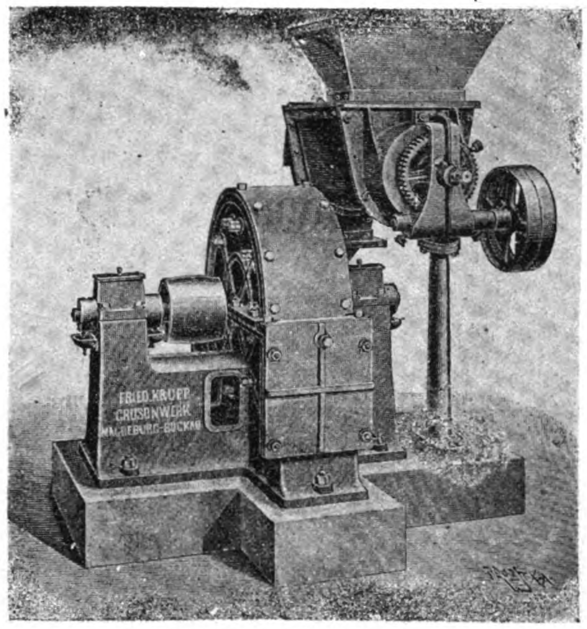
"After heating the meat in the same manner during four or five hours on the next day, it is ready to store for the market. "Grill-dried" copra prepared in this way is not quite so liable to be attacked by insects and molds, but on account of its dark color and slightly smoky flavor it is considered inferior in quality to the sun-dried article."

The following is an estimate of the cost of establishing a coconut plantation. The size of the plantation selected is 500 hectares. Planting 100 hectares a year, it will take five years to put this amount of land under cultivation.

It should be understood that the profits from the plantation store and the income from the sale of the various secondary crops, for the cultivation of which allowance is made in the estimates, will not only pay for all incidental expenses that may occur, but will also considerably reduce the expense of the upkeep of the plantation.

The figures are submitted by Mr. M. M. Saleeby and are based on his experience as manager of the Lapanday Plantation in the Davao River Valley. Mr. Saleeby is at present chief of the fiber division, Philippines Bureau of Agriculture.

All accounts in this statement are in Philippine currency, and the rate of interest is not included in the estimates.



BELT DRIVEN DISINTEGRATOR OR PULVERIZER FOR COPRA

ESTIMATED COST OF PLACING 500 HECTARES UNDER COCONUT CULTIVATION UP TO PRODUCTION STAGE

First Year

Cost of 500 hectares of Government land, at ₱10.00 ₱	5,000
Clearing 100 hectares of forest at ₱30 per hectare	3,000
Cost of 12,000 coconut seeds (1,000 allowed for lack of germination) at ₱40.00 per thousand	480
Lining, holing and planting 100 hectares at ₱8	800
Manager's salary (₱36,000) and subsistence per year (₱1000)	4,600
Manager's residence (₱800) and men's quarters (₱200)	1,000
One native overseer at ₱30 per month	360
Half cost of survey of 1,024 hectares of Government land	250
Tools	200
Three carabaos or cattle, at ₱80 per head	240
Two horses, at ₱50	100
Fencing 100 hectares	2,500
Total	18,530

Second Year

Clearing 100 hectares of forest	₱3,000
Cost of 12,000 coconut seeds	480
Lining, holing and planting 100 hectares	800
Fencing 100 hectares	2,000
Clearing underbrush from 100 hectares, at ₱5.00	500
Manager's salary and subsistence	4,600
Two native overseers, at ₱60 per month	720
Additional tools	200
Depreciation in tools, animals, buildings, etc	300
Total	12,600

Third Year

Clearing 100 hectares of forest	₱3,000
Cost of 12,000 coconut seed	480
Lining, holing and planting 100 hectares	800
Fencing 100 hectares	1,500
Clearing underbrush from 200 hectares	1,000
Manager's salary and subsistence	4,600
Additional buildings and tools	300
Depreciation	300
Two native overseers	720
Total	12,700

Fourth Year

Clearing 100 hectares of forest	₱3,000
Cost of 12,000 coconut seed	480
Lining, holing and planting 100 hectares	800
Fencing 100 hectares	1,500
Clearing underbrush from 300 hectares	1,500
Manager's salary and subsistence	4,600
Repairs and improvements	200
Two native overseers	720
Depreciation	360
Total	13,160

Fifth Year

Clearing 100 hectares of forest	₱3,000
Cost of 12,000 coconut seed	480
Lining, holing and planting 100 hectares	800
Clearing underbrush from 400 hectares	2,000
Manager's salary and subsistence	4,600
Two native overseers	720
Repairs and improvements	200
Depreciation	360
Total	12,160

Sixth, Seventh and Eighth Years

Manager's salary and subsistence, at ₱4,600	13,800
Two native overseers	2,160
Clearing underbrush from 500 hectares	7,500
Depreciation, improvements, etc	1,500
Total	₱ 24,960
Grand Total	₱ 94,110

In connection with the above it might be said that the annual yield of coconuts between the 7th and 14th year averages from 30 to 50 a tree under favorable conditions and when the best methods are employed in the culture. At the present time the yield from the plantations under old methods and with little consideration as to planting and care, the average does not exceed 30 nuts. Estimating the lowest average yield under modern methods to be 40 between the seventh and 14th year, 40 coconuts will yield one-fifth of a picul of copra valued at an average price of say ₱8 per picul. The labor for preparing a picul of copra based on say 80 centavos a day, a high rate of wage, will cost about ₱3.25 making one-fifth or the amount of copra from one palm cost .65 centavos. Deducting the 65 centavos from the selling price of one-fifth of picul—₱1.60—we have .95 centavos as the net profit on one tree annually. After the 14th year, however, the yield per tree averages 80 annually so that the net value of a tree per annum will reach ₱1.90. These figures are most conservative, the wages named being more than double the average price paid and the yield under favorable conditions much more than that noted above.

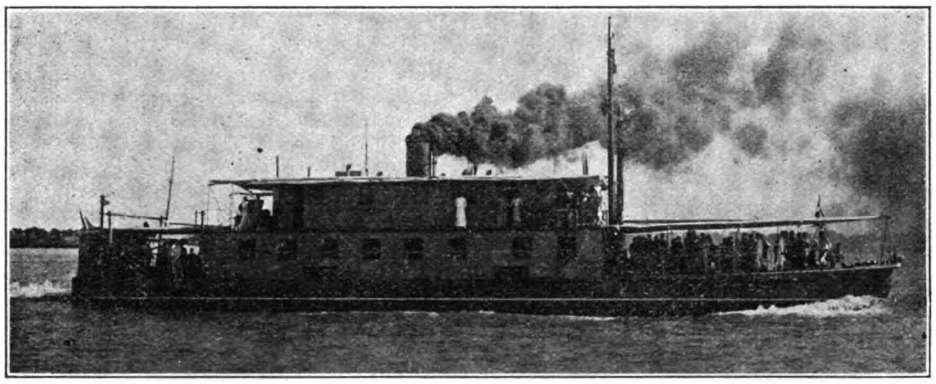
The illustrations accompanying this article are published by courtesy of the Philippine Bureau of Agriculture.

THE UPPER YANGTSZE RIVER STEAMER SHU TUNG

(Chungking, Nov. 26, 1909).

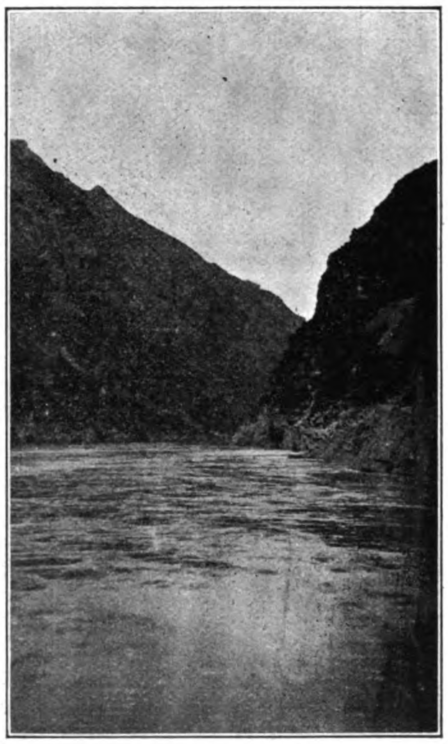
Considerable interest has been aroused in shipping circles by the recent successful attempt to run a passenger steamer on the Upper Yangtsze river between Ichang and Chungking which section, as is well known, abounds with dangerous passages, rapids, races and the like, and Captain Plant of the Szechuen Steam Navigation Co.'s steamer "Shu Tung" is to be congratulated on the excellent performance of the powerful little steam-boat which was built entirely from his own design and erected under his personal supervision. The full benefit of the captain's long experience with the upper reaches of the great river has been given to the design of the "Shu Tung" and that she is built for hard work and not for show is apparent to the most casual observer at first glance. Shortly after noon on the 19th October the "Shu Tung" steamed away from the city of Ichang on her maiden voyage and, before the same evening, arrived below the Yao-Cha-Ho, a rocky reach of the river in which the first rapid, the Ta-Tong-Tan or Otter Cave Rapid, is encountered, but no difficulty was experienced in crossing any of the Tans until the Yeh Tan or Wild rapid was reached. This rapid was very strong, but Capt. Plant was determined to get his vessel over without the use of a hawser made fast to the shore, if possible, so made an attempt to steam right on, however the boiler fires were anything but clean, so the attempt was not made under the most favorable conditions, and after a struggle of a quarter of an hour the little boat was compelled to fall back for a blow, a second attempt proved no more successful than the first and the captain decided to moor below the rapid so that the fires could be cleaned and the crew, generally, given a rest before another effort mas made. After a period of two hours the third attempt was made, this time with success although the struggle with the elements was fierce and long, the tug literally fought its way inch by inch, but in the end proved too strong for the tremendous volume of rushing water against which it steamed.

GROUP TAKEN ON BOARD THE S. S. SHU TUNG JUST PRIOR TO HER DEPARTURE FROM ICHANG, OCTOBER 19, 1909



THE S. S. SHU TUNG'S PASSENGER FLOAT

TRACKERS TOWING A CARGO JUNK OVER THE YET TAN



A SHARP CORNER IN THE WUSHAN OR GLOOMY MOUNTAIN GORGE

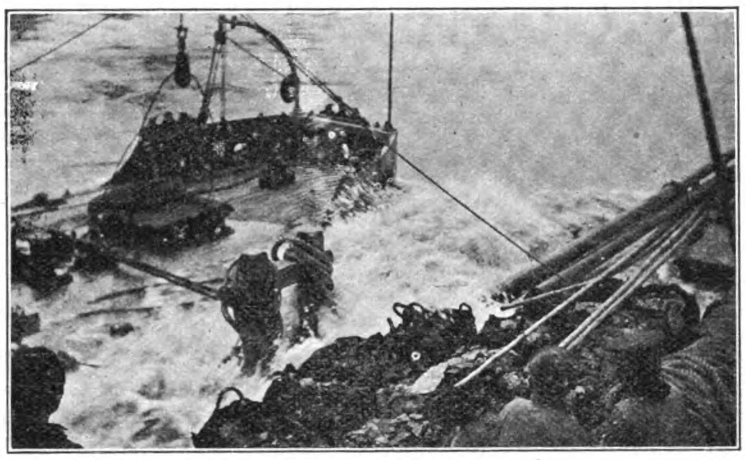
It might here be said that the "Shu Tung" is fitted with hand stearing gear only, steering wheels being provided on both the tug and passenger float and indicators are fitted to show the position of the helms which are four in number. This arrangement has proved quite a success and great control is obtained in the narrow passages of the gorges when both sets of rudders are worked in unison. The real test of the tow-boat's strength, however, was at the Fuh Tan or Tiger rapid which is situated about twelve miles above the city of Wanhsien and has terriffic force during the summer months. At the time the present trip was made the river was slightly on the rise on account of the recent rains. Captain Plant fully expected to have recourse to the use of a tow-line, but, trusting to the good luck which had attended the trip so far, resolved to make an attempt to steam over the rapid. Some idea of the tremendous volume of water can be gathered from the illustrations; the river was a boiling mass of swirling water, all steam valves between engines and boiler were full open, and in the face of this immense demand on the boiler it made steam faster than the engines carried it away, and it was due to the fast steaming power of the boiler, combined with Captain Plant's excellent management, that the "Shu Tung," after a battle lasting over 15 minutes, managed to place the Fuh Tan astern.

The superiority of the water-tube boiler for this up-river work is now unquestioned and it is a very creditable fact to note that the machinery has come up to full expectations and altogether gave a splendid performance during the severe test made on this maiden trip.

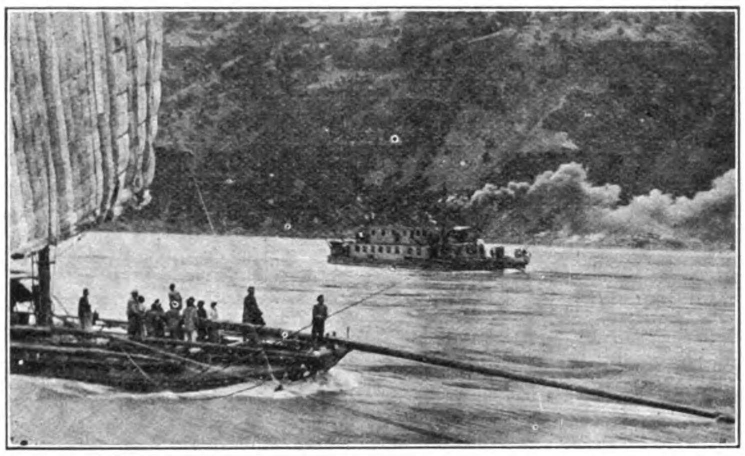
The "Shu Tung" arrived at Chungking about noon on the 27th October and met with a tremendous reception from the Chinese. She is the first steam vessel to fly the Chinese flag on the Upper Yangtsze and the natives are naturally very proud of the boat's performance. The distance between Ichang and Chungking is, as near as can be ascertained, 390 English miles, this distance was covered in 69 steaming hours with a total coal consumption of 45 tons, 12 gallons of lubricating oil of all kinds were used on the trip, roughly the speed averaged 5.8 knots per hour, but this is expected to be considerably increased in future runs.

A brief description of the tow-boat "Shu Tung" is as follows:

The object of having the passenger and cargo vessel separate from the tug which supplies the motive power is, that when the rapids become



COMING TO CLOSE QUARTERS WITH THE FUH TAN AND TIGER RAPID

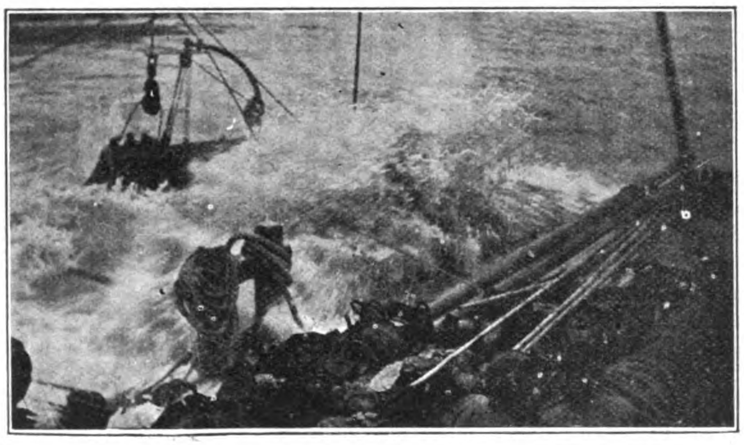


FULL STEAM AHEAD.—THE OLD AND THE NEW

too strong to cross under steam, the tug is separated and gets over the edge of the rapid first and after having made fast to the shore passes a line back to the float which it hauls over the rapid by means of its powerful steam capstan which is fixed on the fore deck. The dimensions of the tug are: Length over all 115'-0". Beam 15'-0". Draft (loaded with bunker coal) 3'-9". The hull is divided into 9 watertight compartments. To generate steam one Patent "Thornycroft" Water-tube Boiler is used, the boiler has three furnaces with a grate area of 74 sq. ft. It has 1031 sq. ft. of heating surface. Steam is supplied to two torpedo-boat type compound condensing engines (twin screw), each capable of developing 275 I. H. P. when supplied with steam at 125 lbs. per sq. in. and when running at a speed of 369 R. P. M. Dial of engine cylinders 12" and 19¾". Stroke 11". The engines are fitted with balanced cranks. The tug and float together with the whole of the machinery were supplied and built by Messrs. J. I. Thornycroft & Co., Ltd., of Southampton, England, and put together at the Kiangnan Dock & Shipbuilding Works.

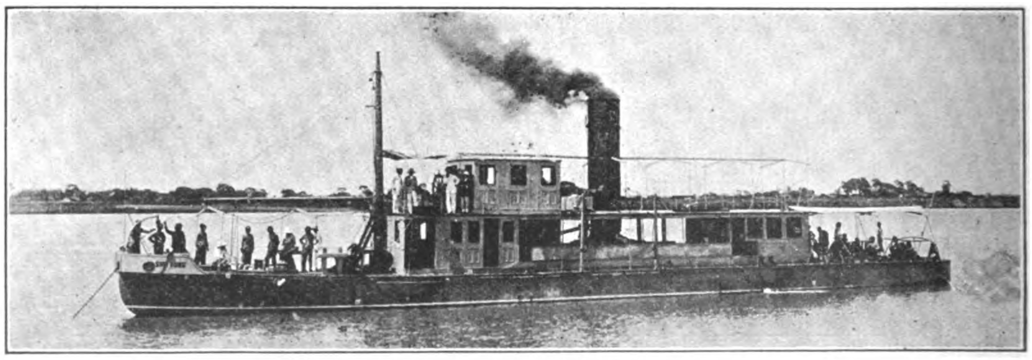
The dimensions of the passenger float are, Length 115'-0". Beam 16'-0". Draft loaded 4'-2". The hull is divided into 10 watertight compartments. Displacement loaded 110 tons. The float can carry 70 tons of cargo below decks and has berthing accommodation for twelve first class and sixty-six third class passengers. No passenger or cargo accommodation is provided on the tug.

The "Shu Tung" will probably be put into commission at an early date and shall make regular trips between Ichang and the "Queen City" of the West This boat is only the forerunner of several others which are to be built, and when these are in operation Szechuen with its boundless commercial possibilities will not be as inaccessible as it has been in the past.



THE FIGHT WITH THE FUH TAN RAPID.—WATER RUSHING OVER BOW OF THE SHU TUNG

THROUGH THE NUI KAN OR OX-LIVER GORGE



THE UPPER RIVER YANGTSZE RIVER S. S. SHU TUNG

MINING DISTRICTS OF MASBATE, PARACALE AND MAMBULAO

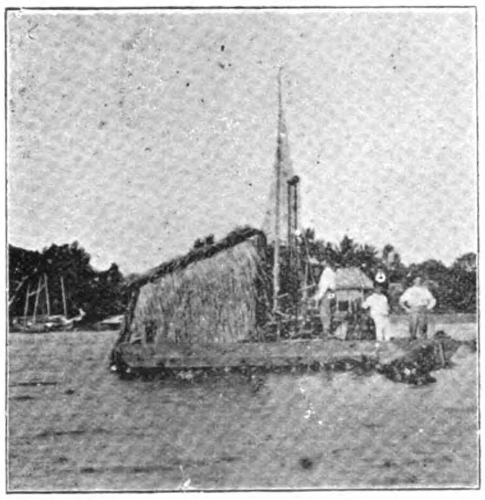
By WARREN D. SMITH

During the past two years, miners of the Aroroy district, Masbate, have been steadily engaged in legitimate development work with the result that they have succeeded in pulling the mining industry of this district out of the mine into which it was plunged by the reckless operations of some of the earlier companies. Mr. H. G. Ferguson, geologist of the division of mines, has been in the district almost continuously since last August, collecting material for a bulletin on the geology of the area. The following details of the mining operations are presented in advance of the publication of the report.

Geologically, the district is composed of a series of old sediments which have been intruded by a mass of quartz diorite. Later a large amount of volcanic action has taken place, giving the series of andesites and breccias which today cover most of the district and contain all the more important veins. Vein formation took place in tertiary times. The principal veins of the district occupy the three large hills Mount Aroroy (elevation 255 meters), Bagadilla (350 meters), and Kalakbao (205 meters). As a rule, the veins are broad, straight and well defined. Widths of over 20 feet are not uncommon and faults are rare. The ore commonly occurs as honeycombed quartz filled with manganese of iron oxide and banded, the banding being most pronounced near the wells. Varying amounts of calcite also occur in several of the veins. In many veins there is evidence of different periods of mineralization. The walls are nearly always well marked and the ore breaks cleanly from the country rock. In some cases the country rock, a decomposed andesite locally called "porphyri," shows workable values for several feet from the veins.

So far exploration has been carried on only in the oxidized zone, which extends to great depth, reaching nearly to the permanent water level. At this depth the ores show a tendency to change to a massive blue quartz, impregnated with pyrite. The strong relief of the district means that a large amount of the available ore is above the water level, and consequently, in the more easily worked oxidized form. Tests on the ores which has been made in the United States for different companies have given from 20 to 33 per cent on the values recoverable by amalgamation. It is probable that actual practise might even give less; this low amalgamation being probably due to the large amount of manganese in the ore. On the other hand, the ore is particularly adapted to cyanidation tests made in the United States and in this bureau showing that an exceptionally large recovery can be obtained by this method. One company which is now preparing to erect a modern mill and cyanide plants plans to dispense with plates entirely, the stamps crushing in the weak cyanide solution.

APPROACH TO TUNNEL AND CHUTE ON EASTERN MINING CO.'S PROPERTY



MAKING BORING TESTS IN MALAGUIT RIVER

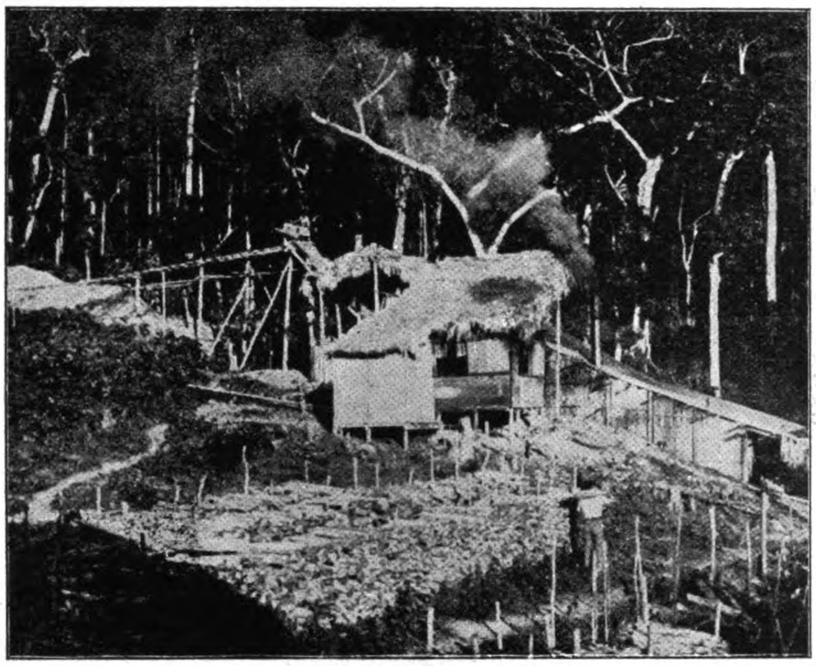
Suggestions have been made at different times that Chillean mills might be used on account of their cheapness; but the large amount of hard massive quartz which must be handled would probably make this method impracticable.

The question of power is the most serious one the district has to contend with. The Guinobatan River runs nearly dry at times and it is very doubtful if even with a dam and storage reservoir it could be regarded as a source of power. Good water power might be developed by a dam at the upper gorge of the Lanang River which has a greater and more constant volume than the Guinobatan. At present, mangrove firewood can be delivered at the mines at an average cost of about ₱5.00 per cord, a cord being considered as approximately equivalent to one-half ton of Australian coal. If several power plants were working, however, the more accessible parts of the mangrove area would soon be cut away and the price would increase. The enforcement of the Forestry Bureau regulations in regard to the cutting of the large trees only would also tend to increase the price. On the other hand, there is every probability that a sufficient supply of Philippine coal will soon be available at a reasonable price. Coal from the Batan mines, which at present have the monopoly of Philippine coal mining, sells at the mine for ₱6.50 per ton, and could be brought to Aroroy. Besides this, coal of better quality has been recently found on the Island of Masbate about forty miles down the coast from Aroroy. It is hoped that a company will soon be formed to prospect these deposits. If satisfactory results are obtained, the mines at Aroroy should be able to secure their coal at a much better figure. The Islands of Cebu and Mindoro are also future sources of coal supply so that in my opinion no apprehension need be felt in regard to the fuel question.

In regard to timber, the district is most favored. Molave and other timbers of the first group sufficient to satisfy all immediate requirements are to be found on most of the claims, particularly those of the Colorado, Syndicate, Tengo and Aroroy companies. At

present, the following represent the average prices paid for timbers:

First group timber 7 ft. long, squared 7 inch, (in some cases only molave accepted).......	₱1.00
Same wood, rough............	.75



VIEW OF MILL SITE ON EASTERN MINING CO.'S PROPERTY

Lagging (molave boards or other first group wood), per running foot.......................	.01 to .02
Ties 4 ft.×8in.×4in., each.....	.10 to .12

The following timbers are commonly used in the district. The list is given in the order of their preference.

1. Woods suitable for permanent workings:
   Molave,
   Dungan,
   Kobe,
   Bansalangan,
   Matamata colorado,
   Matamata blanco.
2. Woods available for temporary timbering, as in stopes which will eventually be filled:
   Lauan,
   Mangasinoro,
   To-og.

Of course, prices will increase somewhat as the timber in the immediate vicinity of the mines is cut off; but the whole central range of the island is heavily wooded and there will need to be no fear of a shortage of timber.

As elsewhere in the Philippines, the labor supply is not entirely satisfactory, though up to the present time there has been no difficulty in securing the necessary labor at ₱0.60 per day if food is provided, or ₱0.80 if the laborers board themselves; and a number of fairly efficient miners have been trained. Wherever possible, work is let by contract as this has been found to secure better results, owing to the close supervision necessary where native labor is paid by the day. There may be a temporary shortage of labor in the district when mines begin operations on a large scale; but there would probably be little difficulty in getting laborers from neighboring islands if necessary, in which event government assistance can be counted on. The native is an irregular laborer and it would always be necessary to have available larger force than actually needed. It might not be possible to work a full force on Sundays and fiestas, but enough steady men could always be secured to keep a mill running continuously, even if mining work was occasionally broken into.

As stated before, the district is exceptionally situated for cheap mining. The mines are from a mile and a half to three miles distant from an excellent harbor, and this, together with the nearness to Manila, should be an important item when it comes to getting in heavy machinery. The high relief of the country gives excellent tunnel sites and a large proportion of the best ore can be removed through adits. While no definite figures are available, Mr. Ferguson believes that in a properly managed company the total costs of mining and treatment should not exceed ₱6.00 per ton. Allowing 20 per cent for less in treatment, this would give a profit of ₱2.00 per ton on ₱10.00 ore, and the great mass of available ore runs higher than this. The following table, based on figures which he has collected in the district, gives average costs of prospecting and development work:

Tunnels....	₱4.00 to	₱6.00 per foot.
Raises.....	4.00 to	8.00 per foot.
Shafts.....	12.00 to	30.00 per foot.

The Keystone Mining Company, operating in Aroroy Mountain, the Colorado Mining Company on Mount Bagadilla, the Syndicate Mining Company, operating the claims of the Eastern Mining Company on Mount Kalakbao, and the Tengo Mining and Development Company, working the claims of the former Mount Cogran Mining Company on Mount Cogran, have all been engaged in vigorous development work during the year. Besides these the Aroroy Mining Company has lately taken over four groups of claims on Mounts Bagadilla and Kalakbao, including the former Gold Bug property, all formerly belonging to Messrs. Edelmaier and Beasley, and prospecting is being carried on vigorously and intelligently. In all cases the development work now going on is the result of careful planning and is being intelligently carried out. As a consequence, large quantities of ore are being blocked out, and when production begins again it should show a constant increase from year to year.

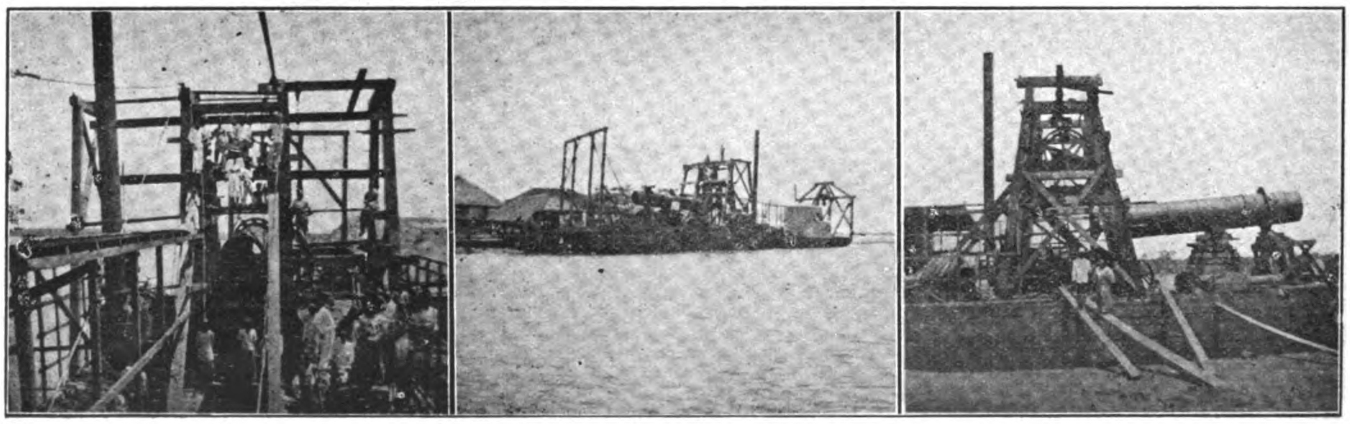
Other operators in the district who have continued steady work are Messrs. Hayes, Draper and Schwab. Placer mining in the district has not recovered from the damage done by the baguio of a year ago, when the dredge of the Lanang Dredging Company was wrecked and their camp destroyed. The placer grounds of this company are now being retested and it is possible that the dredge will be rebuilt.

In conclusion, it may be said that the condition of the district was never better and it is Mr. Ferguson's opinion that while Aroroy may never rank with the great mining districts of the United States or Australia, the next three or four years should show several large and profitable mines.

Mr. Warren D. Smith's advance report on his recent inspection of the Paracale and Mambulao field is as follows:

"This district comprises roughly 400 square kilometers of country of moderate relief. The topography is marked by a number of hills which extend outward as spurs from the cordillera, and have approximately a north and south trend. Between these hills are broad valleys largely filled with nipa and mangrove swamps. The whole country is densely wooded. The most elevated point in the district is Mount Bonotan, some 500 meters in height.

"Metamorphic rocks are a prominent feature of this area. The formations to be found in this district are pyroxenite, schist, granite-



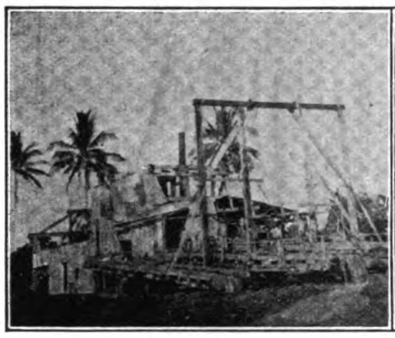
VIEWS OF PARACALE'S GOLD DREDGES

gneiss, granite, shale, sandstone and andesite from north to south in the order named. The strike of the sedimentaries is roughly east and west and they now stand nearly on end.

"Prior to the Miocene disturbance, which flexed these formations into a more or less vertical position, the section of strata was probably as follows: at the base a pyroxenite and diorite complex; above this sandstone, shales and possibly limestone, with andesite overlying these. With the Miocene uplift came the intrusion of granite. (Exposures of the granite cutting across the basic rock can be seen). Along the contact of the two gneiss and schist were developed. Later on, and probably before the outflow of andesite lava, there began a period of vein filling and ore deposition. Naturally, the principal deposition took place along the weak zone of the contact and in the fractures adjacent. The principal lodes today are found along this granite-diorite contact and in the irregular fractures in the granite near its border. The placer deposits are found along the rivers which cut across these veins and are naturally richer near them.

GROUP OF PARACALE MINERS

SAN MAURICIO TUNNEL



PARACALE DREDGE

SAN MAURICIO TUNNEL

PRESENT OPERATIONS

"When we published our last Annual Bulletin there was only one dredge in operation in this district, and all the lodes remained practically as the natives and the former Spanish and English operators (the Philippine Mineral Syndicate) had left them.

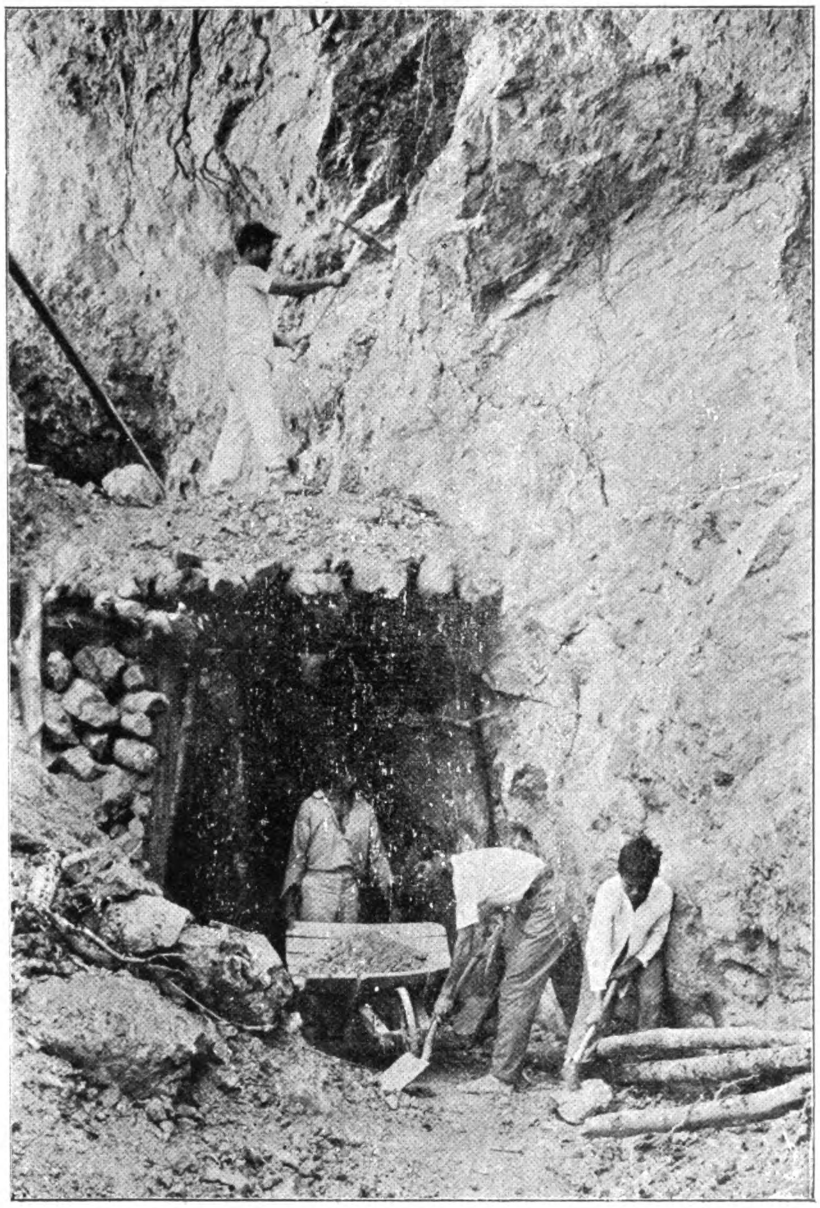
MAMBULAO

"Eight months ago there were only the old workings of the syndicate in this part of the district, and a few recent shafts and tunnels as assessment work. I shall not discuss here the innumerable shafts and tunnels, ancient workings dating from before the Spanish Conquest, with which the country is honeycombed. Since that time two companies, the Tumbaga and San Mauricio, have been getting ready for immediate operation.

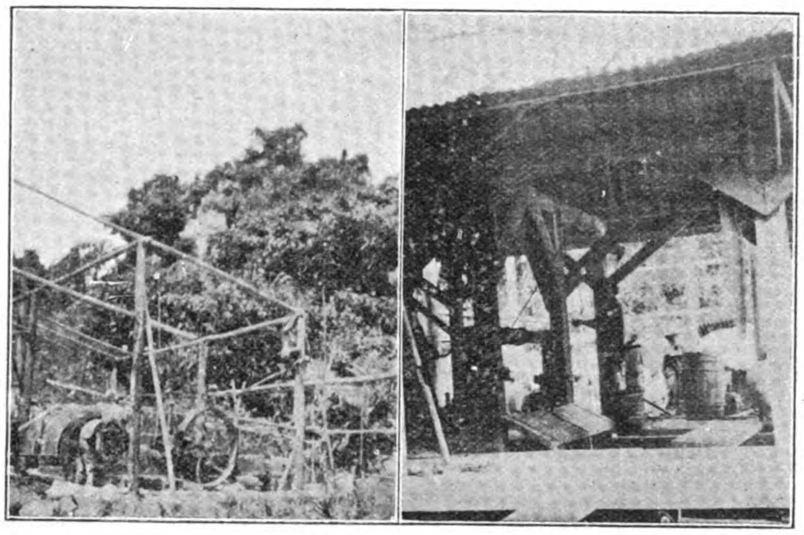
"*Tumbaga.* Tumbaga lies some two and one-half kilometers south of the town of Mambulao.

"The ore body is in a brecciated zone between andesite (porphyry) and sandstone. The trend of the ore body is northeast-south-west. In this there is some slate through which innumerable calcite stringers ramify. Some of these stringers have been found to carry free gold; possibly all of the values may be found to lie in these innumerable veinlets cutting the slate. Mr. Cavender, the superintendent, has opened up 305 feet of drifts and crosscuts, most of which is new work, also a shaft over 50 feet deep, and has constructed a drainage tunnel of 355 feet. He has also, assisted by Mr. Collins, put into working order the old plant, parts of which were missing and the remainder in considerable disorder, so that he was able to make a test run on his ore. The plant as it now stands consists of the following parts: 1 Blake crusher; one 5 foot Huntington mill, having a capacity of from 12 to 30 tons per day; 2 Johnson concentrators; besides the usual accessories, boilers, hoisting drums, skips, etc.

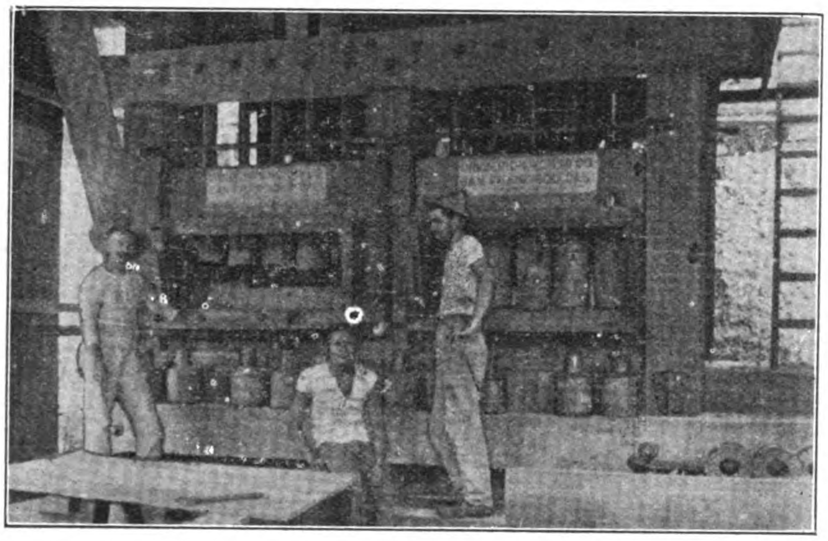
"Although the mineralized zone in places obtains a width of 35 feet, this is not constant. The ore body is lenticular. According to Superintendent Cavender, a trial run of 22 hours was made with this plant in November last. Eleven tons of ore were treated with the result



OPEN CUT AND TUNNEL, MASBATE



HOIST MACHINERY, TUMBAGO MINE



STAMP MILL ON THE MOUNT CROGAN PROPERTY

that 93.6 ounces were cleaned up, which represented merely the free milling part of the ore. The concentrates have not been treated. If these figures are correct, as I have no reason to doubt, this ore contains some very rich streaks.

The San Mauricio. This property is located just one kilometer from Mambulao on the hill to the east of the town. The ore body is a quartz filling along the contact between the granite and the basal rock, which here is more nearly a diorite than a pyroxenite. There has been a total of about 1000 feet of drifts and crosscuts opened up, part of which represents old workings, and part extensions made by the present company, the Superintendent of which is Mr. Blake. Besides this development work, there has been erected a 20-stamp Traylor mill consisting of the following parts: 20 Traylor stamps, Blake crushers, Challenge feeders, and 8 Traylor concentrators. The stamps are 1050 pounds each, and it is proposed to have them dropped at the rate of 94 to the minute through a five inch drop. This mill for completeness, general plan, and the way it has been set up, should be a model for future mills in these Islands. In October of this year, a severe baguio struck this coast and did more or less damage to all the properties. At the San Mauricio the head frame was blown down, but no other serious damage was done. It is not my intention to go much into detail in discussing the rocks and ores of this property, as it is planned to have a detailed study of this district made during the coming year by members of this division.

Other lode properties on which development work has been carried on are: Dinianan north of San Mauricio; the Le Duc property southwest of Mambulao, and the group of claims known as the Iron King, Gordon, Isla, Guinto, Abe Lincoln, and Navotas, a different property, all a short distance east of Tumbaga. These are all promising prospects.

Paracale

The history of operations in Paracale is quite different from that of Mambulao. Here the present operations are confined almost entirely to placers. The early history of Paracale has been written up many times, so that I shall merely mention here the progress that has been made since our last report.

Two more dredges have begun operations above the Paracale. The Stanley dredge farthest up the river is a New Zealand model, operated by New Zealanders. The Philippine dredge is a Risdon make and was operated by an American company. The hull for the fourth dredge is almost completed and plans for the fifth are under way. Of the three dredges on the river, the two New Zealand ones are running steadily, but I regret to say that the third, up to the present time has failed to get results and has temporarily shut down. The Paracale Extension is a new company which plans to work grounds farther up the Paracale River above the Stanley. The services of Mr. Kane, formerly dredge-master of the Paracale company, have been secured. The ground was being tested when I was in the district, and I witnessed some of this testing. Most of the ground on the Paracale and Malaguit River has been tested and staked. However, there are no operations on the latter as yet. These rivers lie in broad valleys, covered with mangrove and nipa, through which the dredges work their way. The mangrove is used for firewood and the nipa is either thrown aside or used by the natives for house building. A test hole in an adjacent river, which serves to give a general idea of the ground to be dredged, showed the following strata:

From	0 to	5 feet,	soil, nipa, etc.
"	5 "	25 "	sand and gravel, with some values.
"	38 "	"	heavy black loam, with considerable vegetable matter.
"	38 "	40 "	gravel pay streak.

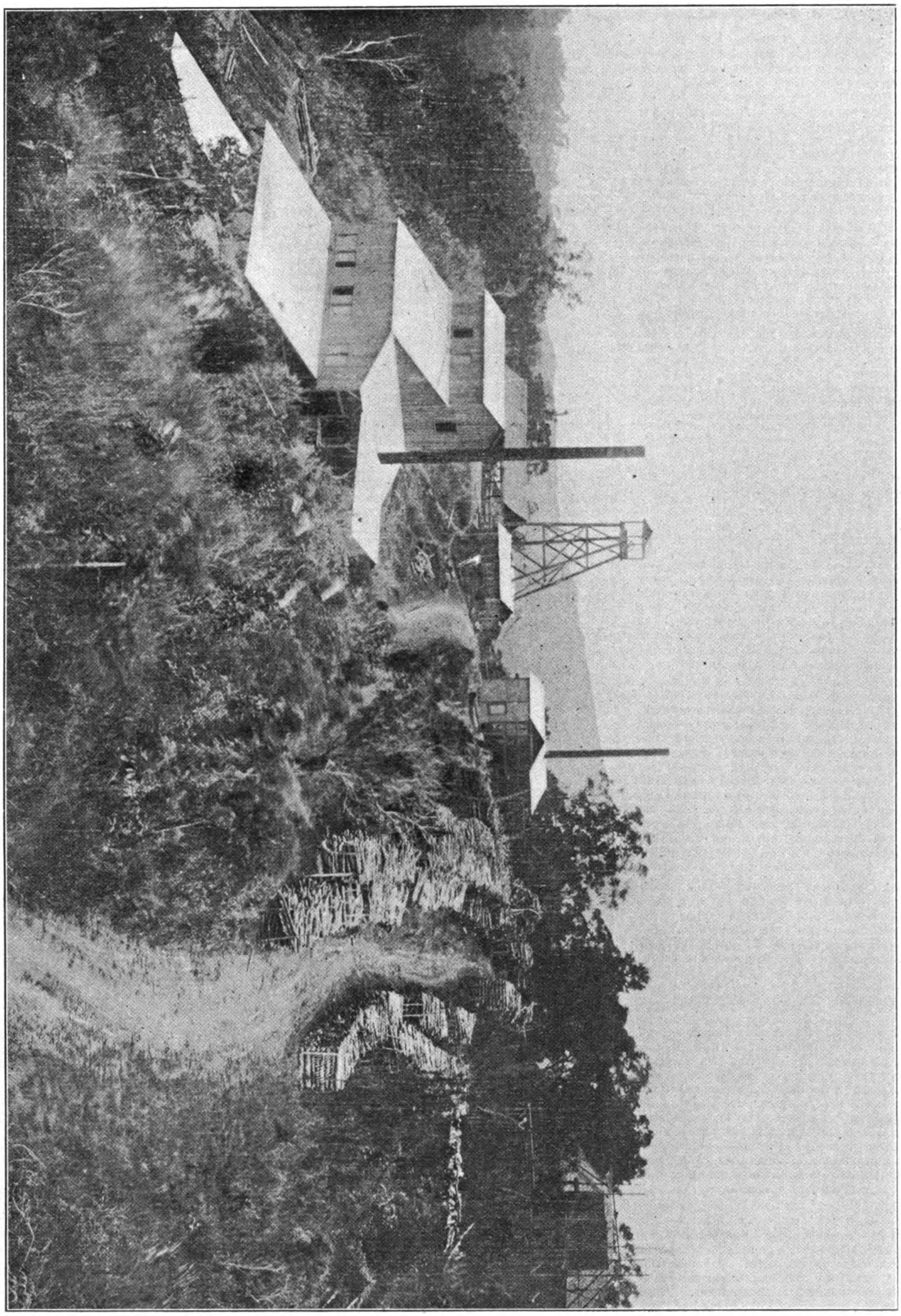
The bed rock is a white decomposed granite gneiss.

In some of the localities the bed rock varies between 10 and 60 feet in depth. In the last few months testing parties have been very active. One party tested along the following rivers: Tabas, Malaguit, Malagbang, Bosigon, Gumaas, Bulalakao, Mambulao, Colombayungon, Tigbi, Maniloc and Ponso. Other parties have carried on extensive boring in the Malaguit River; one company put down over 300 holes. This gives only a small proportion of the testing that has been going on. The Paracale River, of course, is the most thoroughly tested field.

In the forthcoming bulletin of the Mineral Resources I shall describe somewhat in detail the various types of dredges. The ground being worked by the dredges now in operation is unusually rich, in one case ₱2 per yard, according to the dredge-master's sworn statement. It is not likely that such values will be found in all, or even many parts of the district. The richness of certain spots is due to the fact that the river cuts across the veins in these places. This can be easily and clearly seen by an examination of the field relations and of the fresh, crystallized gold as it comes up on the dredge. While this richness may not be maintained throughout the district, there is not much doubt but that there is a great deal of profitable ground and the district can easily stand several more dredges.

Just at present the labor conditions in Paracale are not entirely satisfactory. In other places I have gone into the reasons for this and do not care to repeat them at this time. The Camarines Coast is but sparsely settled and but little opened up by commerce. The conditions ought to improve.

It is necessary at this time and in this place to make a general statement which undoubtedly will provoke some criticism. However, I firmly believe that the public which helps pay for these operations has a right to know the general status of the industry. One dredge is lying idle because of insufficient knowledge of conditions, and a mill has been put up before sufficient development work was done. This jumping without looking ahead or backward has characterized many of our mining operations in the past. Masbate has suffered from it, but happily has recovered and has made a good start in the right direction. It would be a great pity to have Paracale suffer the same setback, as most of the miners in the field are working for the best interests of the district. The knots of many of the mining tangles seem to be in Manila. There is getting to be greater need for engineers of mining geologists in the positions of managers and directors of mining companies all over the world, and the Philippine Islands are not to be excepted in this respect. Let this not be construed as a reflection on the district or the men on the ground. This district has seen some prosperous times in the past and will again.



Reproduced from the "Review"

VIEW OF THE SAN MAURICIO MILL SOON TO BEGIN OPERATIONS

FAR EASTERN RAILWAYS

LOCOMOTIVES FOR THE EAST.—*The London and China Express* states that Messrs. Andrew Barclay, Sons & Co., Ltd., Kilmannock, have received orders for two locomotives for an important company in India; three light class locomotives for Japan; one 14 in. crane locomotive, to lift 5 tons, for South Wales; one 17 in. crane locomotive, to lift 8 tons, and one 9 in. narrow gauge locomotive both for British Colonies, also a number of standard locomotives for home collieries and steel works.

PAKNAM RAILWAY COMPANY, LTD., INCREASES CAPITAL.—At a meeting held at Bangkok, December 9th, it was resolved to increase the capital of the company from Ticals 400,000 to Ticals 500,000 and to make the par value of the shares Ticals 100 instead of Ticals 80. The shareholders also decided to make application to His Majesty, the King of Siam, for a Royal Charter.

PORT-ARTHUR-DALNY RAILWAY.—This line has been ceded to Japan and, according to report, the Chinese retain the civil administration of the South Manchuria Railway District.

FOKIEN RAILWAY CONSTRUCTION.—Advices from native sources are to the effect that the Amoy-Swatow Railway has borrowed Tls. 500,000 and that construction on this line will be resumed.

KIRIN-CHANGCHUN RAILWAY.—Work on the survey of this line began early in December. Chief Engineer Margario is preparing to carry on the survey from both ends simultaneously and expects to have everything ready for active construction by July of this year and have over 30 miles of the line in operation before winter sets in. It is expected that the entire line will be in operation by the Spring of 1912.

ANTUNG-MUKDEN RAILWAY CONSTRUCTION.—The work of piercing the Fuhklinglin tunnel commenced in September is progressing satisfactorily. Latest reports are to the effect that up to December 15th a distance of 135 feet had been pierced from one end and 80 feet from the other. The entire length of the tunnel, when complete, will be approximately 74 chains and is the most difficult part of the work of construction on this line. The contractors expect to have the tunnel completed by November, 1910.

PROPOSED RAILWAY LOTTERY.—This is the latest report from native sources regarding ways and means to raise money for the construction of railways throughout the Chinese empire. According to a Peking wire the Board of Posts and Communications has proposed the establishment of a lottery with a view to creating a construction fund. So far as has been learned Imperial sanction has not been secured.

CANTON-HANKOW RAILWAY.—The work of construction on the different sections of this line is progressing favorably. The section from Canton to Yuntam is in operation and another fifteen miles will soon be added to Taimiao when the viaducts are completed. There has been some difficulty in purchasing the right of way, but this has not delayed the work on other sections. The tunnel at Taimiao has been completed for some time. The survey to the Honan border is now complete and work has commenced at Lokchong.

DAIREN-LAOHUTAN LIGHT RAILWAY.—The promoters of this enterprise have asked for a franchise and propose to spend yen 50,000 in installing a line. They agree to make ten trips a day each way and to provide cars with a capacity of seating 30 passengers. From 4.5 to 10 ton locomotives will be used. They also propose to start work on the construction next spring.

ICHANG-SZCHUAN RAILWAY.—The news that the first sod had been turned at Ichang on the proposed section to connect with the capital of Szchuan would indicate that it is the purpose of the inhabitants of Hupeh and Szchuan to build this line without foreign assistance. It is significant in view of the proposed loan for the construction of the Chuan-Han line of which this section would naturally become a part or otherwise a formidable rival. It is understood that the capital for this native enterprise was largely subscribed by Szchuan.

JAVA RAILWAYS.—The work of construction on the Eastern section under the direction of the Railway Department is being pressed vigorously notwithstanding the fact that labor is reported to be scarce.

PHILIPPINE RAILWAY CONSTRUCTION IN PANAY.—It is the purpose of this company to complete the construction of the line connecting Iloilo and Capiz, a distance of 117 miles, by the end of October, and over 5,000 laborers are employed in pushing the work to completion. About 68 kilometers have been completed. Work was greatly delayed during the rainy season.

THE YUNNAN RAILWAY.—The Governor General of Indo-Chine has announced that through traffic between Yunnanfu and Tonkin will commence on February 1st. The previous announcements of the completion of the road appears to have ignored several breaks in the line where temporary construction is being replaced more permanently. This is the first definite official announcement.

CHEFOO-WEIHSIEN RAILWAY.—Capital to the amount of Tls. 5,000,000 has been subscribed by the merchants and gentry in the Chefoo district for the purpose of constructing the line for which there has been much agitation during the last two years. Application for registration has been made to the Ministry of Agriculture, Industry and Commerce. This line is believed to promise the salvation of Chefoo as a commercial port and it is believed that it will soon be realized.

MUKDEN RAILWAY JUNCTION.—Negotiations are under way in regard to the extension of the Chinese Railway from Hsinmintun into the city of Mukden as far as the Western Gate where the line would connect with the Antung-Mukden line. This would make the Antung line a feeder of the Chinese Railway instead of the South Manchuria and it is possible that the Japanese will hesitate about sacrificing this traffic.

CHINESE EASTERN RAILWAY.—This line has inaugurated first and second class sleeping accommodations in composite cars on the thrice-weekly Trans-Siberian Service from Irkutsk and Chanchun via Harbin each way. The charge is yen 1.50 for each berth taken and yen 1.00 in addition for bed clothes.

PEKING-HANKOW RECEIPTS.—The announcement is made that the receipts from all sources for the month of November reached Tls. 1,170,000 approximately.

SIBERIAN RAILWAYS.—The selection of a route to connect South Siberia and Altai with the trunk line is now in the hands of a commission. It is understood that Semipalatinsk will be the terminal point and the point of junction lies between Omsk and Tomsk.

YALU RAILWAY BRIDGE.—The work of construction is progressing rapidly and from latest reports about one-third of the distance across is prepared for the superstructure from the Korean side.

FEEDERS FOR THE SHANGHAI-NANKING RAILWAY.—The necessity of increasing the traffic for the Shanghai-Nanking line so as to put it on a paying basis is now being agitated. It is proposed to short feeding lines in the vicinity of Soochow tapping Huchow, Kiangyin, Tanyang City, and Ku-yung. It is believed that the construction of these short lines would make a marked increase in traffic for the main line which is sadly in need of the receipts.

YUNNAN-KWEICHOW RAILWAY.—The construction of the line proposed will probably be built by funds contributed jointly by the Board of Posts and Communications and the merchants of Yunnan and Kweichow.

JAPANESE RAILWAYS.—The program of the Japanese Government appears to point to a complete control of all her railways and their development along the most modern lines. Among the improvements proposed is the broadening of the gauge to standard and the construction of new lines and extensions until the system includes all the most important sections of the empire. This means the expenditure of about yen 1,000,000,000 before the reorganization is complete and all the lines brought up to standard.

STATE CAR FOR THE SOUTH MANCHURIA RAILWAY.—An order has been placed in England for a state car which will arrive in April. It will be 80 feet in length and equipped with two private rooms, sleeping compartments, grill, bath, etc. Besides this special coach, sleeping cars of special design are being built at the South Manchuria shops.

KANCHENGTZU CONNECTIONS.—Arrangements have been made whereby the South Manchuria Railway will have a switch connecting with the freight depot on the Chinese Eastern at this point to facilitate the freight traffic.

DOUBLING THE TRANS-SIBERIAN RAILWAY.—Many conflicting reports have been in circulation regarding this project. A German paper is responsible for the report that arrangements had been made with American capitalists to construct the additional track the whole length of the present line. This is denied by St. Petersburg but there seems some truth in the fact that American capitalists have been interested in such a proposal and there is a well-grounded belief that the Russian authorities are not adverse to this means of increasing the facilities of the line in view of the interest taken in the development of Siberia of late years.

KALGAN-KURUN LINE.—This project has been postponed on the recommendation of the Board of Posts and Communications in view of the enormous cost of construction.

HUNAN SECTION OF THE CANTON-HANKOW.—Another memorial has been submitted to Peking by the Governor of Hunan announcing that the people of that province are prepared to furnish the funds for the construction of the line through that province.

CARS FOR THE ANTUNG-MUKDEN.—The South Manchuria Railway shops are turning out 60 2-ton cars to meet the increased demand for cars on this line. There are already in use on the line 500 five-ton and 200 two-ton cars.

YENTAI BRANCH LINE.—The laying of steel on the branch connecting the station with the colliery is complete and the ballasting is finished for half the distance. The latter work has been postponed until next spring.

KIAOCHOW-TSINCHOU RAILWAY.—The Governor of Shantung has proposed a loan to secure money for the construction of this line and the matter has been discussed by the Shantung Assembly.

CONTRACTING NEWS

East Saghalien Railways.—Governor Hiraoka has announced the intention of the government to construct a network of railways on the east coast for the purpose of developing the mining and lumbering industries of that section.

Korean Railways.—With the announcement of the transfer of the control of the Korean lines to the Japanese Railway Bureau the statement is made that it is the purpose of the authorities to inaugurate a program that would, when carried to completion, mean a complete network of railways throughout the country and cost over yen 100,000,000. For the present, however, the work will be confined to the construction of a line from Gensan to Seoul and connecting Mokpho with a point on the Seoul-Fusan road, representing an outlay of yen 39,000,000 and spread over a period of 11 years. There are now over 600 miles in operation in Korea.

The Manila Railway Company.—The report shows that the net receipts for the year 1908 from the holdings in the Manila Railroad Company of New Jersey, U. S. A., were £116,916, or, after deduction of London expenses, £112,-215. Out of this £93,200 has been paid to account of the interest on the A and B Debentures of the company, less the proportion transferred to expenses of construction, as provided for in the plan of reconstruction, leaving a net balance of £19,015, which, with the amount brought in from last account, makes a total of £38,093. This it is proposed to carry forward. The claims of the old company against the Spanish Government (which have been fully provided for) are being prosecuted with the continued support of His Majesty's Ambassador at Madrid, but the directors regret that they are so far unable to report any recoveries. The acting superintendent of the Manila Railroad Company of New Jersey reports that the year's traffics suffered considerably owing to the failure of the rice crop.

Yokohama-Hachioji Railway.—This line will probably be leased by the Government under a contract to pay the shareholders a dividend equal to 3.5%. It was opened in September 1908 and is 27 miles in length. Owing to the competition of the government lines the company has been unable to declare any dividend. The result was a proposal to lease to the Government under the above conditions.

Kweilin-Nanning Project.—Two Belgian engineers are engaged surveying a route to connect these two points via Liuchow and Pingchou on behalf of the Chinese Government and a British engineer is also engaged in a similar enterprise on behalf of a private syndicate.

Japanese Railways.—The following is quoted from Vice-Consul General Babbit's report on railway development in Japan with reference to the fiscal year ending March, 1909:

"Among the improvements contemplated are the following: (1) The quadrupling of the Tokyo-Yokohama line, a distance of 18 miles, and the addition of electric power to the present system of locomotives; (2) the improvement and preparation of the Kioto-Kobe line, a distance of 47 miles, so that higher speed may be developed by trains on that section; (3) the work of linking the Kiushiu lines with those of the mainland by building a train ferry to run between Moji and Bakan (Shimonoseki); (4) the doubling of the Takaido line and its branches, the Kiushiu line and the Hokkaido line; (5) the building of roads at Yokohama, Nagoya, Osaka, and Kobe to connect the present railway with the harbor; (6) the construction of the big central railway depot at Tokyo; (7) the conversion of the road over the Usui-Toge (Usui Pass) in the province of Shiano into an electric tram.

The expenditure will not exceed yen 20,000,000 for the term. Among the private enterprises referred to is the construction of the railway connecting Tokyo and Nagaoka, in the center of the petroleum district on the west coast, a distance of 146 miles and at a cost of approximately Yen 6,000,000.

Philippine Bureau of Supply.—School Supplies—bids to be opened January 29th, 1910.—Hardware and Stationery—bids opened February 3rd, 1910.

U. S. Navy, Cavite.—Tenders for Coal Barge—opened January 25th, 1910.

U. S. A. Commissary, Manila.—6,600,000 pounds frozen beef and 200,000 pounds of Frozen mutton—bids opened April 5, 1910.

Local Sanitary Department, Bangkok.—Supply of Cast Iron Pipes and accessories water supply—no date for opening of bids advertised.

Bids Opened.—City of Manila—contract for laying distribution system, new gravity supply system. Awarded The Atlantic Gulf & Pacific Company, price ₱220,989. The other tenders were: F. D. Hayden, ₱273,522.20; American Hardware and Plumbing Company, ₱253,699.30 Delmar W. Smith, ₱299,055.

Bids Opened.—Electricity Department—Shanghai—for supplying two 500 K. W. Mixed Pressure Turbo Alternators with Condensing Machinery—Awarded Messrs. James Howden & Co. with Siemens Bros. Alternator, the price being £8,838, subject to the approval of Messrs. Preece & Cardew as to the standard of efficiency of high speed alternators. The following is a list of the other bidders.

Name	*Alternator*	*Price.* £
Willans & Robinson	Peebles	7,459
do.	General Electric Co.	7,482
do.	Vickers	7,603
Belliss and Morcom	Peebles	7,761
Maschinenfabrik Oerlikon		7,860
Willans & Robinson	Lancashire Dynamo Co.	7,816
Maschinenfabrik Oerlikon		7,942
James Howden & Co.	Peebles	8,055
Richardsons, Westgarth & Co.	Peebles	8,088
Willans & Robinson	Siemens	8,111
Belliss & Morcom	General Elect. Co.	8,122
Willans & Robinson	Electric Construction Co	8,129
Willans & Robinson	Siemens	8,231
Richardsons, Westgarth & Co	Vickers	8,311
Richardsons, Westgarth & Co.	General Elect. Co.	8,360
Belliss & Morcom a	Electric Construction Co.	8,471
James Howden & Co.	General Elect. Co.	8,471
Belliss & Morcom	Siemens	8,533
James Howden & Co.	Electric Construction Co.	8,700
Richardsons, Westgarth & Co.	Brown Boveri	8,775
Richardsons, Westgarth & Co.	Siemens	8,789
Richardsons, Westgarth & Co.	Electric Construction Co.	8,815
Belliss & Morcom	Dick Kerr	8,839
Richardsons Westgarth & Co.	Siemens	8,909
Parsons & Co.	Peebles	8,934
Willans & Robinson	Dick Kerr	8,943
Parsons & Co.		9,118
Belliss & Morcom	Siemens	9,167
Parsons & Co.		9,218
Brown Boveri		9,521
James Howden & Co.	Dick Kerr	9,559

and two incomplete tenders.

Bids Opened.—Municipality Shanghai—600 sheets corrugated galvanized Roofing. Messrs. Anderson Meyer & Co.'s tender accepted Tls. 910. The other bidders were: Messrs. A. R. Burkhill & Co., Tls. 922 and Messrs. Jardine Matheson & Co., Ltd., Tls. 947.

Bids Opened.—Japanese Imperial Government Railways—27 spans of steel trough bridges. List of tenders follow:

	Yen.
Iida & Co.	572,198.—
Mitsui & Co.	573,850.—
Okura & Co.	584,450.—
Dodwell & Co.	585,000.—
American Trading Co.	588,930.—
Takata & Co.	599,998.—
Sale Frazer & Co.	606,900.—
J. Nishizawa & Co.	627,453.—
Samuel Samuel & Co.	637,960.—

Bids Opened—Iloilo.—Visayan Drug Store Construction 1,000 barrels cement. Contract awarded Messrs. Smith Bell & Co., Ltd., Dragon Brand.

Contract Awarded.—Construction of Ferro-Concrete building for the Chartered Bank of India and Australia on the Shameen Canton. Messrs. Howarth, Erskine Ltd.

Contract Awarded, Singapore Municipality.—Supplying pipes and special castings for gravitation main from Woodleigh filters to pumping station.—Messrs. Robert Maclaren & Co.—for repair of Johnston's Pier Pontoons and housing same for the year.—The Singapore Slipway and Engineering Co., Ltd., $1,220.—Supply of materials and construction foundations and concrete and brickwork incinerators—E. Y. Van Wyngaarden, $38,481.—Coal, 1000 tons. The Borneo Company at $8 per ton ex ship and $8.60 from wharf for Sanctoria or $7.40 ex ship and $8 wharf for Desherghur. Messrs. Riley Hargreaves secured the contract for the supply of engineer's stores for the year.

Cement U. S. Engineer Corps.—(1) delivered one mile from Corregidor shipside (2) delivered shipside, Manila Bay (3) delivered one mile from Corregidor on lighters furnished by Government (4) delivered one mile from Carabao Island on lighters furnished by the Government. The following were the bids:

H. W. Peabody and Co., American Atlas brand—(1) $2.31; (2) $2.19; (3) $2.19; (4) $2.19.

Macondray and Co., Pyramid brand—(1) $2.31; (2) $2.19; (3) $2.19; (4) $2.19.

W. H. Anderson and Co., Green Island brand—(1) $2.36; (2) $2.19; (3) $2.19; (4) $2.27.

Smith, Bell and Co., Dragon brand—(1) $2.36; (2) $2.18; (3) $2.21; (4) $2.21.

Findlay and Co., Alsen brand.—(1) $2.41; (2) $2.29; (3) $2.29.

Wise and Co., O. K. Buffalo brand.—(1) $2.26; (2) $2.26; (3) $2.26.

Behn, Meyer and Co., Hemmoor brand.—(1) $2.30; (2) $2.18; (3) $2.18.

THE STRIPPING OF MANILA HEMP

Great interest is being taken in the development of the machine hemp stripping industry, and perhaps one of the most interesting features of the Manila Carnival will be a hemp stripping contest in which all the hemp machines in the islands are to be entered. News from Davao where the Clarke machine has been operating indicate that it has made good. Demonstrations have exceeded 400 pounds of fiber a day. The stripped hemp is clean and of good quality. Investigations made by the manager of the Clarke Company in Davao have resulted in certain improvements which will add to the value of the machine. Davao hemp is longer than that grown in the Northern provinces, some of the strands being over 16 feet. This requires two clampings, while if the machine was lengthened this double clamping and increase in waste and delay would be avoided. The machines are operated by the Clarke Company under an agreement with the planter whereby the latter delivers the hemp stalks to the machine and the company supplies the labor and operates the machine for just half of the product. The company is now prepared to supply machines within three months from the date of order.

FAR EASTERN COMPANY REPORTS

The Vallambrosa Rubber Co., Ltd.—This company paid an interim dividend December 21st of 1s. 4d. a share less income tax for the year ending March 31st, 1910. The distribution to date of this company is equal to 80% or equal to the dividend for 1909.

The Tronoh Mines, Ltd.—This company has declared an interim dividend of 5% making 10% for the year.

The Otura Lumber Company.—The report for the half year showed a loss in operation of yen 1,185,000.

Eastern Extension Australia and China Telegraph Co., Ltd.—This company declared an interim dividend of 2s. 6d. a share for the quarter ended September 30th, 1909.

The Perak Sugar Cultivation Co., Ltd.—A dividend at the rate of 20% was declared and a bonus of 10% of the yearly salaries paid the staff.

The Menglembu Lode Company, Ltd.—This company has declared a dividend of 10% for the months of October and November.

The British and Chinese Corporation, Ltd.—The report for the year ended June 30th, 1909, shows a profit of £14,345 which, with the balance forward from previous term, made £24,219 available for distribution. A dividend of 10% free of income tax was paid and the balance forward.

The Serdang Company, Ltd., (Sumatra).—This company paid a dividend of 5% and carried forward £5,662.

The Malacca Rubber Plantations, Ltd.—An interim dividend of 10% has been declared and the estimated profits for the year will reach £75,000.

Straits Trading Company, Ltd.—The net profits for the half year ended September 30th, 1909, amounted to $521,610, and with the balance forward from last account made $618,237 available for distribution. A dividend of $1 and a bonus of 50 cents a share was paid; $50,000 added to the reserve; $25,000 transferred to employees' bonus account and a balance of $93,237 carried forward.

The South China Morning Post, Ltd.—The profit for the year ended August 31st, 1909, amounted to $25,506, which reduced the debit balance to $31,000.

Nippon Yusen Kaisha.—From yen 1,632,256 representing the balance to the credit of profit and loss at the end of the half year ended September 30th, 1909, a dividend at the rate of 10% was paid; yen 72,000 added to the reserve; yen 60,000 allowed directors' and auditors' fees and a balance of yen 400,000 carried forward.

Dai Nippon Light Railway Company.—This company paid a dividend of 6% per annum for the term and carried forward a balance of yen 2,407.

The Yokohama Gohin Exchange.—This company has declared a dividend of 14% per annum for the term.

The Tokyo Stock Exchange.—The balance to the credit of profit and loss at the end of the term was yen 642,661, out of which yen 32,000 went to reserve and a dividend of 15% was paid.

The Fuji Paper Mill.—This company paid a dividend of 6% for the half year ended September 30th out of a net profit of yen 240,000.

The Tokyo Electric Light Company.—The net profits for the half-year amounted to yen 1,196,531 and with the amount forward made yen 1,299,150 available for distribution. A dividend at the rate of 10% per annum was paid; yen 85,000 placed in the reserve and yen 178,550 carried forward.

The Japan Flour Mill.—Out of a net profit at the end of the half-year term a dividend of 10% per annum was paid and yen 31,000 carried forward.

Peninsular and Oriental Steam Navigation Company.—The usual dividend of five per cent. was paid on the preferred stock and a dividend of 6.5% for the six months on the deferred stock with a bonus of 3%. The following is a brief report of the statement made by the chairman, Sir Thomas Sutherland, who presided at the meeting held in London, December 9th, 1909:

"The Chairman said that they had expected a very indifferent year. Twelve months ago there was a glut of tonnage in every part of the world, especially in the great ports in the Far East, and they themselves had almost a small fleet of ships laid up in London. They, therefore, brought forward an exceptional balance in their account, in case it might be required in order to meet some emergency. He was glad to say they had not required that balance; on the contrary, after charging their accounts with the full amount of depreciation due—£375,917—they were able to pay the dividend and bonus to which the proprietors had been accustomed for a considerable number of years, and to carry forward a larger sum than they did in the previous year—namely, £65,488. In the circumstances they might, he thought, congratulate themselves on the results of the year's working; it was largely due to the varied character of the company's business, which was never bad on all points, and to the safe navigation of their fleet. They had sold during the past year five of their older steamships. These cost originally £650,000 odd, and they realised £45,000. That demonstrated the necessity of a liberal appropriation for the purpose of depreciating the value of ships from the first moment they came into existence in their service, and it also showed the over-taxation to which shipowners were made liable in the present day. Formerly shipowners were allowed by the Inland Revenue to charge 5 per cent. depreciation by way of sinking fund on the original cost of their ships, but about 15 years ago the Inland Revenue altered that condition entirely, and after wobbling about for some time they eventually dropped down upon 4 per cent. on the original cost of the ships. If the company had only charged 4 per cent. on the first cost of those vessels which they had sold, instead of their having no loss on the transaction they would have incurred an actual loss of nearly £60,000. In the 15 years since that alteration was made they had been over-assessed in the way of profit to the extent of nearly £900,000—that was to say, they had paid income-tax, in round figures, of £50,000 which they ought not to have been called upon equitably to pay. (Hear, hear.) Taxation, of which they had all been hearing a great deal, was a highly progressive science in the present day, and all owners of property must be thankful, not for being taxed, but for having any property left. (Laughter.) The company's present fleet had cost them £9,250,000. In the balance-sheet was added the value of four very costly vessels, the sum being £1,250,000, and that had the effect of raising the book cost of the entire fleet to the extent of about 35s. per ton. But if they allowed for their cash reserves against that, they would find that the ships, including the new vessels, stood at £6 4s. 3d. per ton. That was certainly a very moderate figure for modern and costly ships, which originally cost £23 12s. 6d. per ton. The company had extended their services in various directions. They had made an experimental extension on certain voyages of their ships from Australia to New Zealand which, he hoped, would be a highly popular movement in the Dominion of New Zealand. Then there was a decided improvement in their service to Japan by linking up a fast fortnightly line between Shanghai and Yokohama, which he believed would be the means of bringing more "grist to their mill." They had also added many other ports to their itinerary. The extension to these new places had reference to new trades which were being opened up in China, Japan, and the Straits Settlements. In making the extensions which they had done the directors of that company realised that in these times of change they could not stand still, but must work in harmony with the progressive character of the present day. In the revenue account the most conspicuous feature was that under the heading of freight and miscellaneous earnings, amounting to £1,518,818, which only differed bythe trifling sum of £1,263, from that of last year.

SHIPMENTS OF CIGARS TO THE U. S. OF AMERICA

During December 1909

Exporters.	Cases	Kilos.
*Messrs. Castle Bros.-Wolf & Sons	457	44,440
* " W. E. Olsen & Co.	182	24,364
" Baer Senior & Co.'s Successors	80	11,281
" Meerkamp & Co.	95	8,925
" Compañía Gral. de Tabacos	57	6,666
" J. Henrich	33	4,533
" J. Sta. Marina. (La Insular)	32	3,431
" Philippine Co., Ltd.	17	2,721
" Germann & Co. Ltd.	16	2,051
" La Urania	13	1,312
" Manila Warehouse Co.	7	1,146
" Forbes Munn & Co.	6	693
" La Minerva	2	305
" Chion Yu Nam	2	291
" La Germinal	1	105
" Warner Barnes & Co. Ltd	2	96
" G. Martin	1	74
Total	1003	112,434

*The shipments for the month approximate 10,000,000 cigars and bring the exports up to the end of the year to 37,000,000 cigars.

*These firms represent almost every factory in Manila.

SORTING TRANS-PACIFIC MAILS

The Japanese post office department has recommended the introduction of a system on board the Japanese ships plying between Japan and America for the effectual sorting of the mails on board so as to avoid the delay at either end now obtaining. This provision will be introduced with the amended law encouraging navigation. The first ships to undertake this obligation will be three of the Yusen Kaisha and the Tenyo Maru and Chiyo Maru of the Toyo Kisen Kaisha.

F. M. S. TIN OUTPUT FOR NOVEMBER

	Piculs.
Belat	444
Bruang	192
Bruseh	240
Gopeng	610
Kanaboi	423
Kinta	550
Kledang	250
Kuantan	65
Lahat	810
New Gopeng	185
Pahang Consolidated	1,300
Pengkalen	550
Pusing Bharu	1,141
Pusing Lama	1,614
Rambutan	450
Redhills	300
Royal Johore	125
Salak South	250
Serendah	606
Sipiau	73
Tekka	750
Tronoh	4,452

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, POWER, LIGHT, TELEGRAPHS, TELEPHONES, AIRSHIPS, ETC.

AUSTRALIAN AERIAL COMPANY.—A company known as the Western Aerial Navigation Company, Ltd., has been incorporated for the purpose of acquiring the designs and models of aerial machines from Messrs. W. Thomson and F. A. Boyd. It is reported that these inventors have perfected control of the aeroplane in regard to steering and the maintenance of the general equilibrium. The headquarters are at Perth, Western Australia.

JAPAN-HAWAIIAN WIRELESS EXPERIMENTS.—The attempts made to connect Japan and Honolulu by wireless have not met with success. A distance of about 2,800 miles was covered successfully and it is believed that improvements to the system will ultimately make communication possible. The experiments were carried on by the Chosi wireless station and connection was made with the S. S. Korea about 2,800 miles out and when the steamer was not more than 550 miles from the station at Kabuba, Hawaii.

CANTONESE AIRSHIP INVENTOR.—Mr. Yu Chi-hing, an American graduate, is reported to have invented an airship which will be tested next month. It is said to be 15 feet in length and five feet in width.

KARASUMORI-UYENO SUBURBAN ELECTRIC LINE.—This line was opened for traffic last month and a fifteen minute service inaugurated. The distance between these two points is covered in one hour and ten minutes. There are eighteen stations along the line and the cars have a capacity of 90. The service from Karasumori extends from 5:45 a. m. to midnight and from the other end from 5:50 a. m. to 10:50 p. m.

HONGKONG ELECTRICAL ENGINEER RETURNS—Mr. William C. Jack, of the firm of Messrs. William C. Jack & Co., returned last month after an extended visit in Europe and America.

AVIATION IN TOKYO.—Lieut. Le Prieur of the French Navy has been experimenting with an aeroplane of his invention assisted by members of the local aviation committee, and is reported to have made several successful flights at Tokyo last month.

MANCHURIAN ELECTRIC LIGHT SUPPLY.—It is reported that arrangements have been effected by which the Japanese will transfer all electric light outside the railway zone to the Chinese and that the latter are pledged to supply lighting to Japanese subjects at the same rate charged the Chinese consumer.

WIRELESS STATION ON PRATAS.—The Viceroy of Kwangtung has been directed by the Peking authorities to instal a station at this point at a cost of Tls. 5000.

MUKDEN ELECTRIC LIGHT COMPANY.—This company has been formed with a capital of Tls. 120,000, of which the Chinese Government has subscribed Tls. 60,000 and the balance by Chinese merchants.

FORMOSAN WIRELESS.—Fuki Promontory has been selected as a site for the establishment of a wireless station by the Formosan Government and the construction will begin at once.

WIRELESS IN CHINESE TURKESTAN.—The Peking authorities have imported wireless apparatus for installation at Suilai, Chinese Turkestan, for the purpose of connecting that point with Kobdo.

MORE MANCHURIAN TELEGRAPH STATIONS.—The South Manchuria Railway Company has opened additional receiving offices at Fanchiatun, Shuangmiaotzu and Kuochiatun.

P. & O. WIRELESS.—The steamer Mantua of the P. & O. line established communication between Malta and North Foreland, a distance of 2,000 miles.

WIRELESS IN INDIA.—Wireless communication has been successfully maintained between the Andaman Islands and the mainland on either side of the Bay of Bengal. Stations will be added at Madras and Karachi as well as Colombo in the near future if present plans mature.

ELECTRIC CRANES FOR JAPAN.—An order has been placed by a leading Japanese Dockyard with the firm of Messrs. Royce, Ltd., Manchester, for two 125 ton electric cranes.

OSAKA-KOBE ELECTRIC RAILWAY.—Capitalists of Kobe and Osaka are promoting a company with a capital of yen 5,000,000 for the purpose of building and operating an electric line connecting the two cities. It is proposed to make the trip between these two points in less than 35 minutes.

FLYING MACHINE PATENTS.—The Japan Times gives the following list of applications for patents for flying machines considered favorably:

(1) Flying Machine, patented Sept. 15, 1904. Inventor, L. Reynolds. Provided with and propelled by means of three wings and two pedals.

(2) Aeroplane, patented Nov. 21, 1904. Inventor, August Clawe. Provided with ten screws and two coating curtains, and propelled by motor power.

(3) Aerial Car, patented Oct. 22, 1907. Inventor, Seldin Edy. Provided with and propelled by means of two large horizontal wheels at the front part of the car.

(4) Balloon, patented Dec. 23, 1908. Invented by the Aerofly Company. Provided with two pear-shaped balloons and moved by a special propeller.

(5) Aeroplane, patented Feb. 26, 1909. Inventor, L. Monfund. Started by the alternate movement of two wings and moved on by a propeller of special construction.

(6) Safety Aeroplane, patented Feb. 27, 1909. Inventor, Captain Yamade. A kite-system balloon from which a rope is suspended and attached to the car to which the propeller is attached.

(7) Aeroplane, patented March 30, 1909. Inventor, Gustaf Kerkatt. Raised up and driven by four propellers, two horizontal and two vertical.

(8) Aeroplane, patented May 29, 1909. Invented by Mario Siffon. Provided with two air balloons floated by means of hydrogen gas and provided with two propellers.

(9) Airship, patented June 18, 1909. Inventor, Odora Rhodes. Provided with two balloons, four wings, and a propeller operated by an oil engine.

(10) Flying Machine, patented July 20, 1909. Invented by Tosaku Uchida. Provided with five screw propellers operated by a motor engine. Also provided with six wings.

TOKYO ELECTRIC RAILWAY TRAFFIC.—The receipts from passenger traffic for the six months ended June 30th, 1909, was yen 2,980,000. There were over 83,500,000 passengers carried.

SINGAPORE ELECTRIC MAINS.—The budget for 1910 includes the sum of $50,000 to be expended in the laying out of electric mains.

TOKYO CIRCULAR RAILWAY.—This line was opened for traffic as announced on December 17th. The time between Shimbashi and Ueno is about one hour and fifteen minutes. The coaches are of German manufacture and have a capacity of 90 passengers. Transfers are allowed at either terminus to the Tokyo Electric.

GENERAL ELECTRIC AMALGAMATION.—Tokyo papers state that the amalgamation of the General Electric Company of America with the Shibaura Company of Japan has been carried one step nearer to accomplishment, and that the lines of agreement are the same as those already described in these columns, namely, that the present capital of one million *yen* is to be raised to 2 millions, whereof the stock and plant of the Shibaura Company will be reckoned at 1,200,000 *yen*, 500,000 will be put up by the American Company and the remainder by the Japan Electric Company.

THE TOKYO ELECTRIC RAILWAY.—The report for the half year ended November 30th shows traffic receipts for the term to have been yen 2,992,188; electric lighting, yen 76,812 and miscellaneous yen 424,135. The net profits for the term were yen 1,649,385.

PUBLIC WORKS, WHARVES, DOCKS, BUILDINGS, ETC.

SIAMESE PUBLIC WORKS CONSTRUCTION.—The firm of Messrs. Howarth Erskine, Ltd., has secured the contract for the erection of a palace at Pachim and the same firm has completed a steel store building for the Royal Naval Department.

SHANGHAI CLUB CONSTRUCTION.—The new club building is rapidly assuming form. The walls have been completed to the second story. The floors are all concrete and the construction fireproof throughout.

PHILIPPINE PUBLIC SCHOOL BUILDINGS.—The expenditure of ₱700,000 in the construction of buildings throughout the provinces is the program for the year and it is expected that 138 new school buildings will be ready for occupancy by June. They are built for the accommodation of the barrios and the cost will range from a one-room building at ₱2,000 to six-room buildings at ₱9,300. Reinforced concrete will be used with iron roofs and the wood for the finishings will be of the first group.

ANTUNG IMPROVEMENTS.—Japanese initiative has resulted in the lining of the river channel with buoys and the construction of an extensive dyke around the settlement to protect the inhabitants and their property from the annual floods. Better streets are being built and the element of permanency has entered into all building operations.

PORT ARTHUR AS AN OPEN PORT.—With the proposal to open Port Arthur to foreign trade it is planned to cut a channel across the isthmus into Pigeon Bay so as to give ships more space to make the port, the entrance at the present time being so narrow that it is impossible for two large vessels to pass each other in the channel.

KIRIN PROVINCIAL BUILDING.—The home of the provincial assembly recently completed cost in the neighborhood of Tls. 50,000. It has an amphitheater capable of seating 100 persons and a gallery for about 200 persons. There is also a building attached to be used as a home for the deputies. The building is lighted by electricity.

YOKKAICHI HARBOR IMPROVEMENTS.—The prefectural council is considering a bill providing for the expenditure of about one million yen in constructing a breakwater and dredging several acres in the center of the harbor as well as to reclaim about 75,000 tsubo of land. There is a disposition on the part of the councillors to postpone the improvements until the railway connecting that port and Tsuruga is completed.

GERMAN OBSERVATORY AT KIACHOW.—The Germans have established an observatory at this point and it has been found invaluable in furnishing information of threatening storms to the coasting trade. The Peking Government has been approached on the subject of maintenance.

INDIAN IRRIGATION.—The area included in the different system in operation has reached over 2,785,000 acres and the investment has paid the government a return on investment of 4%.

U. S. CONSULAR BUILDINGS IN THE FAR EAST.—The Chamber of Commerce of San Francisco has introduced a bill in Congress having for its purpose the purchase of sites and the construction of consulates in the different sections in the Far East of a standard consistent with the dignity of the United States.

ARTESIAN WELLS IN THE PHILIPPINES.—The success of the artesian well boring program under the direction of the Bureau of Public Works so marked the reduction of the mortality list where they have been introduced that a large number of municipalities are providing funds for the purpose of supplying pure water to the inhabitants from this source. The municipality of Naic recently voted the sum of ₱2,000 to be expended in boring a well for that town.

SELANGOR COAST WATER SUPPLY.—The estimated cost of this work is $580,000 of which the sum of $350,000 will be expended in 1910.

PORT WORKS AT CHANCHUN.—The sum of Tls. 1,000,000 has been appropriated by the Ministry of Finance to make Changchun an open port.

CLASSIFICATION OF PHILIPPINE PUBLIC ROADS.—Governor General Forbes recently issued the following executive order classifying the different kinds of roads in the islands and fixing the responsibility for their maintenance:

(1) Insular Roads.

All roads now or hereafter opened, constructed and maintained wholly by appropriation of Insular funds and so determined by executive order.

(3) Provincial Roads.

(a) All roads extending from municipality to municipality. The termini of the roads to be the plaza.

(b) All roads extending from a municipality, or branching off from a Provincial road, to a public ford, wharf, ferry, beach, river-landing or railway station.

(c) All roads extending from a municipality to the provincial boundary, when the road is continuous to a municipality in the adjoining province.

(d) All roads hereafter constructed wholly from Provincial funds, or partly from Insular and partly from Provincial funds.

(3) Municipal Roads.

All public roads not enumerated above.

Provided, however, That any municipal road of great importance to the province may, on request of the Provincial Board and the concurrence of the Municipal Council, be classified as a provincial road in the discretion of the Governor-General

IMPERIAL CHINESE MILITARY ROADS.—The Military and Naval Boards of the Empire have planned the construction of military roads and the following have been ordered surveyed:

From Moukden to Yingkow; Moukden to Chinchow, Shanhaikuan to all important ports on the coast; Tientsin to Taku, and 3 other places; Laichou to Chefoo and two other towns; Wuelh to Kangyin and other places; between Shanghai and Woosung; Hangol on to the coast; Hangchou to Ningpo; Fuchou to Maweikou, Tingchang, and Tunghsia; between Chaochou and Swatow; between Kueilu and Taipeng; between Canton and Hunau; between Lienchou and Pakhoi.

RANGOON HARBOR IMPROVEMENTS.—Messrs. Heenan & Froude have the contract for the construction of several miles of wharves and embankments for the Commissioners of that port.

SEOUL WATERWORKS.—The water supply is directed by a British Company which is soon to transfer its property to a Japanese syndicate. The plant is situated on the River Han about five miles from Seoul and was opened in August 1908. The installation cost in the vicinity of yen 3,000,000 and the capacity of the plant is about 4,000,000 gallons daily although not over 1,000,000 gallons have ever been utilized.

CANTON WATERWORKS.—This installation which represents about Tls. 1,500,000 is now under Chinese management. The installation was under the direction of British engineers and British machinery was used.

NEW TOKYO CLUB.—The plans are now available for the construction of a large social club at the Japanese capital which when completed will cost about yen 250,000.

IRRIGATION IN COCHIN-CHINA.—Since 1890 irrigation has been given attention by the government, but it was not until 1904 that the work assumed any great proportions. Since that time about francs 50,000,000 have been expended with the result that about 380 kilometers of canals have been opened and rivers deepened and made available for navigation and provides for the irrigation of the lands. It is also proposed to reclaim an area of uncultivated lands in South Cochin-China covering an area of about 1,000,000 hectares by the construction of a complete system of canals, etc., which will not only be utilized for the distribution of water, but will be available for navigation of small craft. The total cost of the scheme will reach in all some francs 75,000,000.

SWATOW FRESH WATER SUPPLY.—The Customs have constructed a fresh water tank having a capacity of 25,000 gallons near the harbor for the use of the employes of the institution.

PHILIPPINE IRRIGATION ALLOTMENTS.—The following moneys have been allotted for the year for the development of the different projects outlined and under way:

The Agno river project will receive ₱800,000, ₱300,000 of which is made immediately available. This project will feed the rice lands of Pangasinan province and is one of the biggest of all the irrigation projects. A sum of ₱37,000 is to be used in perfecting a system of irrigation in the town of Orion. Pototan, an Iloilo interior town, is to receive ₱277,000 for irrigation work, of which ₱150,000 is now available. A sum of ₱50,000 is to be spent in Leyte and ₱5,000 in Pelilla, Rizal.

DISTRIBUTION OF MANILA'S WATER SUPPLY.—The contract for the installation of the distribution system of the city gravity supply recently awarded the Atlantic Gulf and Pacific Company includes the laying of watermains from the reservoir and about 35 miles of water main pipe. A 42-inch pipe will carry the water to Santa Mesa and from Santa Mesa it will be carried in two 30-inch pipes, one running to Calle Iris and the other to Paco and Pandacan. From Calle Iris a 20-inch pipe will carry the water to Reina Regente to be distributed to all the different parts of the city by smaller mains. The Paco and Pandacan pipes will feed the other side of the river and the smallest pipe will not be less than six inch. The price is ₱266,989 and the contract requires the work to be completed by April, 1912.

MELBOURNE HARBOR IMPROVEMENTS.—Plans are perfected for the construction of a railway pier at a cost of over £250,000 near the present pier to accommodate vessels of any size and within three miles of the business section of the city. This pier will be about 1,800 feet long and 225 feet wide, with berths ranging from 20 to 30 feet of water alongside. Four railway tracks are proposed.

KOREAN ROAD CONSTRUCTION.—Over 200 miles of roads are under construction or repair in Korea and represents the outlay of about yen 1,000,000 and all are nearing completion.

TSURUGA HARBOR WORKS.—A petition has been presented to Tokyo asking for an appropriation of yen 800,000 for this work and to be expended in four years.

JAPANESE PUBLIC IMPROVEMENTS.—The new budget provides among other public work for the Akita Waterworks, yen 70,000; Kuzryu River Repairs, 30,000; Hokkaido and Rumo-e Harbor Works, 210,000 Shimonoseki and Hoji Harbor Works, 500,000; Kobe Customs Breakwater, 300,000; Asahigawa Water works, 100,000 Chinkai Naval Harbor, 500,000; Law Courts for Osaka, 160,000 and Road Building, 300,000.

BANGKOK LUNATIC ASYLUM.—The construction of an asylum has been authorized by his majesty the King of Siam and site chosen near the hospital for infectious diseases. The area of the proposed site for the institution covers approximately 62,000 square meters and the building will accommodate 400 inmates. The estimated cost is about Ticals 360,000.

ILOILO HARBOR WORKS.—The sum of ₱250,000 has been appropriated for the dredging of the Iloilo River and the contract let to the Atlantic Gulf and Pacific Company who have begun work. It will probably take about six months to expend the sum available after which it is believed funds will be available to continue the work. The sum necessary to improve the river so as to berth vessels alongside and meet the demands of the increased shipping at this point is approximately ₱2,500,000.

ADEN HARBOR IMPROVEMENTS.—The entrance to this port is being dredged to 30.6 feet, an increase of depth of ten feet and the work is expected to be completed by March. It is proposed to increase the size and depth of the mooring basin so as to accommodate 15 of the largest ships afloat. The cost will be about $400,000 and will be completed in about two years. The entrance is about a mile in length and one-quarter of a mile wide.

PENANG WATER SUPPLY.—The following scheme has been approved by the Governor-in-Council upon recommendation of the Municipal Commissioners:

Service Reservoir at or near Ayer Etam	$242,153
30-Inch main from Waterfall Reservoir to town	312,000
Land for Waterfall Reservoir Gardens and Removal of Gardens	100,000
Hill roads diversion at Waterfall and Ayer Etam, removal of Hindu Temples and diversion of drainage from catchment area where necessary	277,960
Total	$932,113

CEBU WATERWORKS.—A project is on foot to instal a gravity water supply system in Cebu from the headwaters of the Labangon River, the estimated cost of which will be about ₱1,000,000. The source of supply is about four miles from Cebu and has an elevation of about 250 feet and it is proposed to build a concrete dam across the gorge to a height of 90 feet and carry the supply to the city by a 16-inch pipe line.

SHIPBUILDING, MERCHANT MARINE AND FISHERIES

PACIFIC MAIL PROMOTION.—Mr. Fred J. Halton has been appointed agent for the company at Hongkong vice Mr. S. Silverstone resigned.

MINNESOTA BERTHS AT MANILA DOCK.—The S. S. Minnesota, the mammoth steamer of the Great Northern S. S. Company is expected in Manila this month and will tie up at the Government Dock.

DAIREN-SHANGHAI SHIPPING TRADE.—Three regular lines are now operating steamers between these points. The South Manchuria Railway Company has a semi-weekly service; Butterfield and Swire a weekly and a bi-weekly service under the direction of Messrs. Arnhold Karberg & Company is maintained.

KOREAN FISHERIES.—The fishing department of the Oriental Development Company will be ready for operation next April and will practically control all the fishing grounds on the Korean coast. A fleet of fishing boats are being built and Japanese fishermen will be encouraged to settle in different colonies along the coast.

STEEL MASTS FOR U. S. PACIFIC FLEET.—The announcement is made by the Navy Department that all the vessels in the Pacific will be provided with the new military steel skeleton mast adopted by the department.

HAMBURG-AMERICAN LINE TO CALL AT TSINGTAU.—The announcement is made by the agents of this line that a steamer will call every month at this point.

MARINE WIRELESS.—Lloyds' Register announces that 404 vessels are equipped with wireless and 362 with submarine signalling apparatus.

DAIREN ICE BREAKER.—The new ice-breaker built for the South Manchuria Railway by the Osaka Iron Works is now in operation in the harbor.

BLUE FUNNEL STEAMER LAUNCHED.—The Protesilaus is the name of the new 17,400 ton vessel launched recently at Newcastle on Tyne to the order of Alfred Holt for the British carrying trade with the Far East. The vessel is 515 feet in length with a 60 foot beam and a depth of 30 feet. She will ply between the United Kingdom, Far Eastern Ports and Puget Sound.

NIPPON YUSEN KAISHA'S EUROPEAN SERVICE.—The company has improved this service by the substitution of six new twin screw vessels of 8,500 tons register each for the old vessels and the voyage between London and Kobe reduced to 45 days and a call at Marseilles will be made every 14 days.

RIVER STEAMER LAUNCHED.—The Kedah, the first of two vessels ordered from the Kwong Tuck Cheung yards at Hunghom, Kowloon by the Eastern Steamship Company at Penang was launched December 11th. The vessel was built of steel and the work carried out by Chinese. The length is 138 feet, beam 20 feet and depth 9 feet.

CHINESE NAVAL COLLEGES.—It has been decided to open a naval college at Chefoo by the Chinese New Year and that similar institutions will be established at Nanking, Foochow, and Canton later.

STEEL BARGES FOR MACAO.—The Macao Harbor Works has ordered four steel barges from the Shanghai Dock and Engineering Co., Ltd., to cost about $13,000 each and a towboat has also been purchased by the Macao Government.

REDUCED RATES TO MANILA CARNIVAL.—The following Companies have announced one and one-third rates for round trip: The Compania General de Tabacos de Filipinas, Ynchausti & Ca., Pujalte & Co., Pasig Steamer & Lighter Co., G. Urrutia & Co., J. M. Poizat, Fernandez Hermanos, Benito Siy Cong Bieng and the Bureau of Navigation. Messrs. Smith, Bell & Co. and the Compania Maritima have declared the same rate from Cebu and for the balance of the ports a rate of one and one-half. Teodoro R. Yangco has declared a rate of two-thirds of the rate one way for the round trip. The above rates have reference to the Philippine Islands. A special round trip rate from Hongkong to Manila has been made at ₱50 by the China Navigation Company, the Indo-China Steam Navigation Company and the China-Manila Steamship Company. The Compania Transatlantica has made a reduction of 28% on the regular rate for a round trip ticket from Singapore. The Pacific Mail and the Toyo Kisen Kaisha have made a rate of ₱220 round trip from Yokohama to Hongkong and ₱198 from Kobe and ₱148.50 from Nagasaki. On steamers direct to Manila meals and sleeping accommodation would be included during the visit at that port. The Korea is scheduled to carry visitors from Shanghai.

CHIYO MARU OMITS SHANGHAI.—This vessel on its last trip from Hongkong made a direct trip to Nagasaki and from there to Kobe, Yokohama, Honolulu and San Francisco omitting Shanghai.

AMERICAN SHIP'S SUBSIDY.—A bill was introduced in Congress providing for a subvention of $4 a mile to American ships plying between Pacific and the Far Eastern ports.

MODERN TRAWLER IN JAPAN.—The fishing companies working out of Nagasaki have for some time been utilizing the steam trawler with success and there is promise of unusual activity in this modern method of fishing this year.

BANGKOK MOTOR LAUNCH.—A motor launch built to the order of the Banque de l'Indo-Chine was launched from the yards of Messrs. J. D. Macarthur & Co., Ltd. Bangkok, last month. It is forty feet in length; eight feet three inches wide and of very light draft. It is driven by a 40 h. p. 4 cylinder Kelvin motor using kerosene. This firm is now building a tug boat for the Royal Southern Railway and a launch each for the Bangkok Pilots Association and for Chao Phyia together with a passenger boat for Luang Sophen.

MINES, MINERALS AND THE METAL TRADE

SAGHALIEN COAL.—The report of the Governor of the Japanese section of the islands contains the information that the coal output for the year was about 3,000 tons and that it was expected to increase this to 80,000 tons in 1910. The quality of the coal is reported to be excellent for steaming purposes.

HEADQUARTERS MINING COMPANY.—The remaining stock of this company which is operating in Benguet has been underwritten by Messrs. E. S. Kadoorie of Hongkong. This insures a 15 stamp mill f r the company and sufficient capital to maintain the development work.

PHILIPPINE MINING ITEMS.—The new prospectus of the Antimok Valley Mining Company which has property developed in Antimok, Benguet, has been issued. The Bua Mining Company which suffered to some extent from the recent typhoon is again operating at its full capacity and the output averages about 10 ounces per working day. The Baybay Oil Company which is developing very promising oil deposits in Tayabas has been successfully financed. There was a general demand for the shares and sufficient capital is available to carry out the program of the company. Great interest is being taken in this flotation as the prospects for the development of the oil industry of Tayabas are very bright. The news from Paracale continue encouraging. The San Mauricio will soon be operating notwithstanding the set back occasioned by the recent storm and reports from the Tumbaga indicate that as the development work proceeds the values increase and the area covered by the dyke enlarges. The Paracale Gold Mining Company has suspended operations while its dredge is being repaired, but it is understood that arrangements are being made to utilize the Philippine Company's dredge during the interval. The Stanley Dredge is making satisfactory returns and the company has not yet begun operations on the richer deposits. Messrs. Squires, Bingham & Company have rich placer holdings in the province of Nueva Ecija and it is understood that arrangements are being made for the development of one of their rich groups. Tests recently made averaged from ₱0.50 to ₱1.40 a cubic yard on some of the ground. Reference to the Masbate development work will be found in another column. The Paracale extension is practically financed and the demand for the stock is increasing. This property is said to be one of the richest in Paracale. Many inquiries are being made for gold properties by American capitalists, but there is a disposition among the holders to encourage Far Eastern capital in the development work. Hongkong, Shanghai and Singapore are becoming interested in the promising outlook and the fact that the islands are so situated that investors may keep in touch with the operations make the investments very desirable.

HEILUNGKIANG COAL MINES.—A report from Peking is to the effect that the Russians are interesting themselves in the development of the coal and other mineral deposits and that a protest against these operations has been made by the Chinese.

BENGUET MINING ASSOCIATION.—The annual meeting of this association was held the latter part of December and the following officers were elected: President, Mr. Con Shay, Superintendent of the Bua Mining Company; Vice-President, Mr. H. Phelps Whitmarsh, President of the Headquarters Mining Company; 2nd. Vice-President, Mr. J. R. Tudor; Secretary Treasurer, Mr. Harry Smith; Executive Committee, Messrs. Whitmarsh, Tudor, Colgan, Fidele, and Wingall; Road Committee, Mr. John Wagner; Manila Committee, Dr. John R. McDill, Judge J. W. Haussermann, Mr. H. T. Fox, and Mr. Stewart F. Jones as well as any representative of an active mining company. The retiring president, Mr. C. Eye, Superintendent of the Benguet Consolidated was the recipient of a vote of thanks for his services to the association. Mr. Eye has resigned his position and has associated himself with the Aroroy District, Masbate.

BURMA TIN MINES.—The output for the year is reported to be about 1,000 tons and there is prospect for greater activity during the current year.

HUPEH IRON MINES.—The report of the students of the Higher Industry School who were recently sent to Hupeh to report on the mineral wealth of that province has been submitted, and is in effect that there are six extensive and rich deposits of iron in that province and according to the investigators sufficient ore to furnish all the material necessary meet the demand for manufacturers of steel throughout the Empire. They recommend the building of light railways to the mines and their development with Chinese capital.

YUNNAN COPPER.—The copper deposits of Yunnan are known to be very extensive, but only the most crude methods are employed in smelting. Private enterprise is not encouraged and it might be said to be a government monopoly. The ore from which the copper is extracted also contains silver and gold, but in the process of smelting all these values are lost.

LUZONITE.—This mineral is found in the copper deposits of Mancayan and is described as a variety of enargite containing 47% copper.

GOLD MINING IN KOREA.—The *Seoul Press* is responsible for the report that three Korean miners arrived in Seoul with an accumulation of gold valued at yen 400,000 saved from placer ground during a number of years work. The placer land is reported to be located in the upper reaches of Korean rivers and streams and in old river beds.

LARGE F. M. S. MINING GRANT.—The Penang Gazette calls attention to a grant of 2,000 acres of mining land to Mr. Seaborn Marks between Assam Kumbang and Kampong Dew. These tin deposits are to be worked by dredgers.

COAL FOR CAVITE.—Coal to the amount of 30,000 tons is being shipped from the Atlantic range for use of the Pacific fleet.

LABUAN COAL FOR THE PHILIPPINES.—The Philippine Railway Company has placed an order with Messrs. Behn Meyer & Co. for the delivery of 5,000 tons of Labuan coal to Iloilo and Cebu. The Germania recently discharged 2,000 tons at Iloilo for the Atlantic Gulf and Pacific Co. and the North German Lloyd is using Labuan coal exclusively for its vessels.

TONKIN MINING INDUSTRY.—The coal mining industry in Tonkin represented an output of 310,000 tons, of which 222,000 tons were exported during the year 1908 and for 1909 the output was 350,000 tons. There are eight coal mines in operation. The other minerals include exports of tin and tungsten, 200 tons; and zinc, 47,000 tons. The value of the output in minerals during the year 1909 amounted to francs 9,000,000 as against francs 7,000,000 in 1908.

F. M. S. TIN EXPORTS.—For the eleven months ended November 30th, 1909, the exports of tin amounted to 737,730 pikuls, a decrease of 39,000 pikuls compared with the corresponding period of 1908.

INDIAN MANGANEZE ORE.—The development of the manganeze ore deposits in Gangpur State, Bengal, gives promise of unusual returnsa. In 1907 2,933 tons were mined and in 1908 20,000 tons. During 1909 the concessions granted exceed all former records.

MINING MACHINERY FOR THE PEKING SYNDICATE.—This company has placed an order with Messrs. Hathorn, Davy & Co. of Leeds for a large pumping plant for their properties in China. It will have a capacity of raising 74,000 gallons per hour from a depth of 1,000 feet. Two sets of pumps will be used, one at each level. A large compound condensing engine capable of working these huge pumps will be installed over ground. It is expected that the plant will be installed by the end of the year.

OILFIELDS IN RUSSIAN SAGHALIEN.—Three oil fields have been discovered and are being developed on the East coast. The Okha River district which seems the most promising contains a large petroleum lake covered with a coat of asphalt. The Boatasin and Nutovo fields have been more generally prospected. In 1901 boring operations began and sufficient evidence of rich deposits was found to warrant the organization of a company with a capital of Tls. 420,000 the subscribers being Germans, British and Chinese. The buildings are erected and the plant is being installed. Pipes will be built to run the crude oil to the steamers from the retaining tanks. The other fields are known as the Nabil Bay but little development work has been done. The market for the oil is assured in China and Japan.

KOREAN SMOKELESS COAL.—Advices from Seoul are to the effect that that capital to the extent of yen 2,500,000 has been interested in the development of the extensive deposits of smokeless coal at Pingyang.

FUSHUN COAL EXPORT.—For the eight months ended November 30th, the South Manchuria Railway Company's Mining Department has exported from Dairen 97,135 tons of Fushun coal and an equal amount was sold at the dock for home consumption during that period.

DISCOVERY OF GOLD IN PANAY.—Prospectors report the discovery of gold deposits in the Province of Panay, Philippine Islands, in the vicinity of Passi.

KOREAN GRAPHITE MINING.—The production of graphite during the year 1908 amounted to about 7,000 tons. The deposits are scattered generally throughout Korea, but the greater deposits are to be found in the provinces of Kyeng Sang, Chung Cheng and Pyeng-an. Greater activity along modern lines is expected during the year and extensive surveys are being made of the extent and value of these deposits with the object of development.

SURIGAO GOLD MINING DISTRICT.—There are 33 placers claims in this district and indications that quartz may be found in paying values in the mountains. The claims are located along the Agusan River. From time immemorial natives have panned gold in this section, but no effort has been made to introduce modern machinery. It is understood that the Guggenheimer Exploration Company is interested in this district.

SIBERIAN COAL DEPOSITS.—The coal deposits reported in the region of Kunsetsk are said to extend over an area 75 miles in width and 375 miles in length.

THE YALU LUMBER COMPANY.—The announcement is made by the directors that this company has realized a net profit of yen 200,000 during the six months' term, equal to 7 per cent. per annum.

KUALA LUMPUR RUBBER COMPANY, LTD.—This company has declared a dividend of 20% for the year ended June 30th, 1909.

COMMERCIAL, FINANCIAL AND MISCELLANEOUS

NEW RUBBER COMPANIES.—The Denniston (Krian, F. M. S.) Rubber Estate Ltd, capital £150,000, minimum cash subscription 10,000, shares, £1 each. Teluk Anson Rubber Estates, Ltd., capital £60,000, shares £1; Kellantan Rubber Estates, Ltd., £60,000, £1 shares; Borneo Proprietary Estates, Ltd., £100, shares £1 each; Arundel Rubber Estates, Ltd., capital £8,000, shares, £1; Parit Buntar Syndicate, Ltd., capital £6,000, shares £1; Straits Hevea Plantation, Ltd., £81,000, 20,000 shares, £4 each and 20,000 shares, 1s. each; Scottish Tea and Rubber Trust, capital £150,000, shares £1 each; Bikam Rubber Estates, Ltd., capital £60,000 in 2s. shares; Jasin Rubber Estate, Ltd., (Malacca), capital 4350,000 shares $1. each.

MERCANTILE BANK OF INDIA.—This institution has opened a branch at Kuala Lumpur.

THE ORIENTAL MORTGAGE, FINANCE AND TRUST COMPANY, LTD.—This is the name of a new flotation with a capital of $45,000.

TAXATION IN JAPAN.—The Japanese taxpayer paid an average of yen 44 per head during the year 1909 and in the Fukuoka prefecture it reached yen 73.40 per head.

JAPANESE POTATO EXPORT.—Potatoes to the value of yen 207,000 were shipped to the Philippine Islands during the year 1908 and this will be exceeded by the returns for last year.

TOKYO ELECTRIC INCREASES ITS CAPITAL.—A recent resolution adopted by the shareholders of this company provided for an increase of the capital from yen 7,200,000 to yen 14,400,000.

JAPANESE FOREIGN INSURANCE BUSINESS.—The following is an estimate of the business secured abroad by the Japanese fire insurance companies:

In Korea, -Y-109,040,000; in China, -Y-46,-600,000; in Hongkong, -Y-1,660,000; in Hawaii, -Y-10,060; in Singapore, -Y-330,000; and in Macao, -Y-120,000; making a total of -Y-158,-000,000 in round figures.

MANCHURIA'S CENTRAL BANK.—The announcement is made that the proposal to have the Yokohama Specie Bank extend its operations in Manchuria instead of the plan to establish an independent bank has been approved by the cabinet. The Specie Bank will limit its operations for the present in this connection to about two million yen a year. Long period loans on property will be made in addition to the regular industrial operations.

SIAM'S TEAK FORESTS.—The Royal Forestry Department has instituted new regulations which increase the leases from six to fifteen years and raised the royalty per log from Ticals 10 to Ticals 12. The larger areas of forest are divided in halves, one half being reserved. Regrouping of leases and the amalgamation of small interests have been encouraged so that practically the whole available forest of teak is covered by a few concessions.

JAPANESE BANK DEPOSITS.—At the end of the year the accumulated deposits in the banks at Tokyo amounted to almost yen 250,000,000, an increase of yen 35,000,000 over the amount of deposits for the corresponding date, 1908.

STRAITS PETROLEUM TAX.—A tax of 5 cents. a gallon has been authorized on all petroleum used in the Straits Settlements.

PHILIPPINE POPULATION STATISTICS.—The Philippines have a population of about 8,000,000 or about 70 persons to the square mile. Cebu has a population of 336 to the square mile, Panay 161 and Negros 94. The average density of the United States is 26. The density of British India is about the same as Panay, and Cebu has a density greater than France, Germany, Italy or Japan.

EASTERN PROVINCES LOAN.—The loan of Tls. 7,000,000 will be distributed as follows: The Hongkong Shanghai Banking Corporation, Tls. 4,500,000; The Tokkwa Bank, Tls. 1,500,000 and the Banque de l'Indo-Chine, Tls. 1,000,000.

BANGKOK POPULATION.—The late census gave the city a population of 630,000.

TOKYO REFORMATORY.—The expenditure of yen 40,000 has been authorized to establish a reformatory on Bonin Islands large enough to accommodate 100 persons.

RUSSO-ASIATIC BANK.—This organization is reported arranged for by the union of the Russo-Chinese Bank and the Bank du Nord.

BOYER, MAZET & COMPANY.—This firm has been formed with a capital of francs, 1,500,000 with branches at Shanghai and Canton to deal in silk, etc.

JAPAN'S APPLE PRODUCTION.—The returns for the year will reach a value of over $1,500,000 and there is promise of a yearly increase of activity in this industry.

MESSRS. SMITH, BELL & CO., LTD.—The partnership known as Smith, Bell & Co. operating in Manila, Cebu and Iloilo has been reorganized under the above name with Mr. F. Stuart Jones, president, and Clive Kingcome, treasurer.

BANK OF KOREA.—The transfer of the interests of the Dai Ichi Ginko at Seoul to the new institution was made the latter part of November.

INSULAR LUMBER COMPANY'S RECORD.—This company's sales for December amounted to approximately 1,000,000 feet b. m. and the demand exceeded the supply available. It is the purpose of the company to instal an electric light plant and run the mills in Negros day and night.

NEW JAPANESE HOSE JOINT.—A Japanese mechanic named Hori has invented a hose joint that overcomes all the defects of the screw joint used in connecting up hose used in fighting fire. The sections can be connected up in about one-tenth of the time hitherto required. A test made at Fukagawa demonstrated that the joint would stand a pressure of 250 pounds. The inventor has been working on this idea for ten years.

JAPANESE SAVINGS BANKS.—The total deposits in these banks at the end of November amounted to yen 122,518,904, an increase of over 18,000,000 yen during the eleven months of 1909.

STRAITS CURRENCY,—The millesimal fineness of the subsidiary coin is to be reduced to 600 which wil make a profit to the government of 25% exclusive of cost of recoining.

THE ORIENTAL PRODUCTS COMPANY.—This is a new corporation with headquarters in New York having for its purpose the development of the industries of the Philippines and the export of products. Mr. Chas. Landau is the president and Harry Rothschild, the treasurer of the company. Mr. Hord, formerly director of the Internal Revenue Bureau of the Philippine Islands and who has been in Washington assisting in the battle for free trade is in charge of the Manila office. Manager Hord is at present interested in the organization of the Philippine Cigar Manufacturers and will interest himself in encouraging better methods of tobacco growing.

FAR EASTERN MEDICAL ASSOCIATION MEETING.—The program for this important convention to be held in Manila March 5th to March 14th is now complete. Representatives from every point in the Far East are expected and many papers of unusual interest are promised.

HEMP STRIPPING MACHINES.—The McLane Hemp Machine Company has placed an order in Hongkong for the manufacture of 100 hemp stripping machines and expects to have delivery of 25 by April. The report from Davao is to the effect that the operations of the machine have met expectations.

NEGROS-PHILIPPINE COMPANY.—This company has been organized with a capital of ₱2,000,000 for the purpose of installing a mill at Cadiz with a capacity of 40,000 feet per diem of 24 hours. The survey for the six miles of railway proposed is now complete. For the present a small mill will be installed, but the large plant will be in operation by the first of next year. Mr. J. Clayton Nichols, formerly of the Insular Lumber Company, is the promoter and general manager of the new company.

JAPANESE DOMESTIC BONDS.—The total for the half year ended June 30th reached the enormous value of yen 126,000,000.

THE SOYA BEAN IN NORTH CHINA.—It is estimated that the crop of this bean in North China will reach 1,000,000 tons. The demand for this cereal is increasing and promises to exceed the supply. This bean is declared to contain no starch and is favored for diet for invalids suffering from diabetes. The Japanese manufacture a condensed milk and cheese from it. It has also been introduced as a coffee bean with success. It contains about 18% oil superior to the cottonseed oil.

KOREAN COTTON GROWING INDUSTRY.—The export of raw cotton from Korea amounted to yen 150,000 during the eleven months ended November 30th, 1909, an increase of over 200 per cent. This is the direct result of the encouragement given the industry by the Japanese Government. It promises to become one of the most important industries of the country. A cotton cultivation station has been in operation at Mokpo for some time and it may be remarked that the greatest activity in this line of endeavor was remarked from this section.

PNEUMATIC TUBE SERVICE IN TOKYO.—The installation of the first system of this kind in Japan was inaugurated by the General Post Office connecting the general office with the branch at Kanda, last month. The plant cost about yen 75,000.

COTTON INDUSTRY IN CHINA.—The total export of raw cotton from China during the year 1908 amounted to approximately 86,000,000 pounds valued at about £1,500,000. Besides this amount 27 mills are kept busy with a spindle capacity of 750,000.

MOUSSELINE WEAVING IN JAPAN.—This industry is represented by a production valued at Yen 4,000,000 and it is expected the production will be doubled in the near future Attention is being given to the export trade and there is promise of large orders in competition with European houses.

METRIC SYSTEM IN CHINA.—With a view to introducing the metric system in the Empire, the Chinese minister in Paris has been instructed to secure all the data in regard to the system and forward it to Peking.

CHILD LABOR IN JAPAN.—A bill has been submitted by the Department of Agriculture and Commerce for consideration of the Diet at its next session providing for the prohibition of the use of child labor under 12 years of age and the hours are not to exceed 12 hours daily for all children under 16.

MESSRS. JARDINE MATHESON & Co's. BRANCH AT DAIREN.—This branch was formally opened on December 4th. Mr. E. U. Reid assisted by Mr. W. F. Ingals gave a reception on that occasion.

THE NANKING EXHIBITION.—The number of applications for apace by foreign and Chinese firms would indicate that the exhibition which will be held some time during April or May will meet the expectation of the promotors.

YOKOHAMA SPECIE BANK.—This institution has sent a representative each to Mexico and Brazil for the purpose of establishing branches and extending its interests in Mexico and South America.

PEKING PRINTING DEPARTMENT.—There is a movement on foot to establish a modern printing department at Peking at a cost of about Tls. 100,000.

*LONDON, ENGLAND, METAL MARKET

**The following are December 8 prices of metals:—

COPPER	£	s.	d.		£	s.	d
*Tough cake and Ingot	62	0	0	..	62	10	0
*Best Selected	62	0	0	..	62	10	0
*Electrolytic	62	10	0	..	63	0	0
*Sheets and sheathing	72	0	0	..	—		
*Flat bottoms	75	0	0	..	—		
STANDARD †Cash	58	7	6	..	—		
STANDARD †Three Months	59	10	0	..	—		
*Copper tubes, seamless per lb.	0	0	8¾	..	—		
*Lake	65	0	0	..	65	10	0

* Less 3½ per cent. † Net.

ALLOYS.							
BRASS: Wire	0	0	6¾	..	—		
,, Tubes (solid drawn)	0	0	7¾	..	—		
,, Sheets	0	0	7	..	—		
TIN.							
English ingots, f. o. b.	141	10	0	..	142	0	0
,, bars	142	10	0	..	143	0	0
,, refined	143	10	0	..	144	0	0
Straits... Cash	—			..	—		
Straits... Three months	143	0	0	..	—		
Australian spot	145	0	0	..	—		
Banka (in Holland) Cash	141	2	6	..	—		
Banka (in Holland) Three months	145	0	0	..	—		
LEAD.							
Spanish or soft foreign	12	17	6	..	12	18	9
English pig, common	13	2	6	..	13	5	6
,, L. B.	13	12	6	..	—		
,, sheet and bar lead	14	7	6	..	—		
,, pipe	14	17	6	..	—		
,, red	16	0	0	..	—		
,, white	17	15	0	..	—		
,, patent shot	16	2	6	..	—		
SPELTER.							
Silesian ordinary brands	23	0	0	..	23	2	6
,, special brands. / English Swansea	23	10	0	..	23	15	0
Sheet zinc	25	15	0	..	—		
ANTIMONY.							
Antimony.	28	10	0	..	30	0	0
,, Crude	13	10	0	..	14	0	0
,, Ore (basis 50%)	8	0	0	..	9	0	0
QUICKSILVER.							
Flasks 75 lbs. warrants	9	17	6	..	—		

MANGANESE. Ore, c i f., U. K. ports.	Per unit.*				Per unit.*
Indian & Brazilian, 50 per cent.	0	0	9½	..	—
,, ,, 48 ,,	0	0	9¼	..	—
,, ,, 45 ,,	0	0	9	..	—
Caucasian, 48 per cent.	0	0	8½	..	—
,, 48 ,,	8	0	8	..	—

* Unit corresponds to 1 per cent.

ALUMINIUM.	Per ton.				Per ton.		
98-99 per cent	67	10	0	..	70	0	0
NICKEL.	Per ton.				Per ton.		
98-99 per cent. guaranteed	167	10	0	..	171	0	0

PLATINUM.*
Per oz. Troy, 120s. nominal and subject to negotiation.

HEMP STATISTICS, 30th DECEMBER, 1910.

(Courtesy of C. S. NICHOLSON, *Secretary, Manila Chamber of Commerce.)*

EXPORT OF HEMP, NOVEMBER, 1909.

Date		Vessel	London	L'pool	Atlantic U.S.	Pacific East & California	Continent	Australia	Other Pts.	Total Bales
1909		Forward:—	248,014	116,843	547,636	116,460	57,271	18,243	29,234	1,153,701
Dec.	1	Duffield			22,700			1,975		22,700
"	3	Loongsang					100			100
"	4	Rubi					250		800	1,050
"	6	Ceasar			1,600					1,600
"	"	Prinz Waldemar						80		80
"	7	Taming							200	200
"	9	Indravery clude (Cebu)			29,675					29,675
"	10	Ocean Monarch	10,400	2,337			850			13,587
"	"	Yuengsang					74			74
"	11	Zafiro							450	450
"	"	Eastern							90	90
"	13	Kaifong (Cebu)							50	50
"	12	Kremlin	10,032	3,400			600			14,032
"	14	Tean		200			300			500
"	18	Aymerich				3,361				3,361
"	"	Yawata Maru	87						131	218
"	24	Antilochus				1,500				1,500
"	"	Taming	1,203	140			650		25	675
"	"	Yueng Sang					344		25	369
"	"	Ocean Monach	9,243	3,225			550			13 018
"	"	Zafiro					550		250	800
"	27	Indrani			2,225					2,225
"	"	Kumanu Maru						980		980
"	28	I. de Panay	250				200			450
		Tean					100		175	275
"	29	Kaifong	50							50
"	30	Loong Sang	3,437	363			200			4,000
			218, 13	126,368	623,836	121,321	62,039	19,303	31,430	1 265,810

FAR EASTERN STOCKS AND QUOTATIONS

Courtesy of Messrs. Kadoorie & Co., Hongkong, December, 1909.

STOCK.	WHEN ESTABLISHED	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	AT WORKING ACCOUNT	DATE	LAST DIVIDEND.	Approximate Yield per cent per annum at Present Quotation	CLOSING QUOTATIONS
BANKS.											
Hongkong & Shanghai Banking Corporation	1865	$15,000,000	120,000	$125	$125	g £1,500,000 s $15,250,000 i $250,000	$2,001,819	30-6-09	Interim of £2 for account 1909, @ ex 1/9 ⅛ = $22.72	4	1000 sales £91.10
National Bank of China, Ld.	1891	£699,475	10) 99,925	£7	£6	c £4,019 $300,000	$30,552	31-12-08	$2 (London 3/6) for 1903	....	$65 buyers
MARINE INSURANCES.											
Canton Insurance Office, Ld.	1881	$2,500,000	10,000	$250	$50	$1,560,000 j $254,583 u $302,790	Nil.	31-12-08	$10 for 1908	7	$145 sellers
North China Insurance Co., Ld.	1863	£150,000	10,000	£15	£5	g £125,000 s Tls. 22[illegible],000 u Tls. 335,253 f Tls. 146,586	Tls. 207,572	30-6-09	Final of 7/6 making 15/- for 1908.	....	Tls. 112½ buyers
Union Ins. Society of Canton, Ld.	1867	$3,100,000	12,400	$250	$100	s $3,000,000 g £90,000 f $192,248 j £105,249 u $682,609	$2,464,901	31-12-08	Final of $17 making $47 for 1907, and interim of $30 for account 1908	5½	$900 sales
Yangtsze Ins. Association, Ld.	1862	$1,200,000	12,000	$100	$60	$1,000,000 j $294,405 f $199,234	$707,637	31-12-08	$12 and bonus $3 for 1907	7	$230
FIRE INSURANCES.											
China Fire Ins. Co., Ld.	1870	$2,000,000	20,000	$100	$20	$1,000,000 x $438,668 f $13,802	$375,314	31-12-08	$6 and bonus $2 for 1907	7	$118 sales
Hongkong Fire Ins. Co., Ld.	1868	$2,000,000	8,000	$250	$50	$1,438,173	$368,711	31-12-08	$27 for 1907	7½	$370 sellers
SHIPPING.											
China & Manila Steamship Co., Ld.	1882	$750,000	1) 30,000	$25	$25		Dr $21,538	31-12-08	$1 for 1906	....	$8 sellers
Douglas Steamship Co., Ld.	1883	$1,000,000	20,000	$50	$50	$230 000 i $100,589	Nil.	30-6-09	$2½ for year ending 30-6-1908	....	$33
Hongkong, Canton & Macao Steamboat Co., Ld.	1865	$1,200,000	80,000	$15	$15	e $250,000 d. i. $617,500 f $119,267 $ 22,645	$21,170	30-6-09	Interim of $1½ for a/c 1909	7¾	$32 sales
Indo-China Steam Navigation Co., Ld. (Preferred) Do. Do. (Deferred)	1882 m	£600,000	2) 60,000 2) 60,000	£5	£5	i £148,891	£15,162	31-12-08	6/- for 1907 on pref. shares only at ex. 1/9 11/16, $3.154	....	$63 buyers
"Shell" Transport & Trading Co., Ld.	1898	£ 2,000,000	2,000,000	£1	£1	£720,000 i £100,000	£192,994	31-12-08	Final of 2/- for 1908 & int. of 1/- for a/c 1909	—	66/6 buyers
"Star" Ferry Co., Ld.	1898 1900	$200,000	10,000 10,000	$10 $10	$10 $5	$65,000 i $48,980	$31,21	30-4-09	$1.00 / 50 cts. for year ended 30-4-09	4 3½	$26 buyers $14½
REFINERIES.											
China Sugar Refining Co., Ld.	1878	$2,000,000	20,000	$100	$100	e $350,000 r $56,848	Dr. $5858	31-12-08	$5 for year ending 31-12-08	3½	$158 sales
Luzon Sugar Refining Co., Ld.	1882	$700,000	7,000	$100	$100	none	Dr. $135,893	31-12-08	$3 for 1897	—	$21 sellers
Perak Sugar Cultivation Co., Ld.	—	Tls. 350,000	7,000	Tls. 50	Tls. 50	Tls. 100,000	Tls. 6,302	31-8-09	Tls. 10 for year ending 31-8-09	....	Tls. 355 buyers
MINING.											
Chinese Engineering & Mining Co., Ld.	1901	£1,000,000	1,000,000	£1	£1	d £215,000 h £12,289	£1,435	28-2-09	Final of 1/6 making 3/- for 09	7	Tls. 18 sellers
Headwaters Mining Insurance Co.	1908	₱600,000	2S) 60,000	₱10	₱10				First year		$10½ buyers
Raub Australian Gold Mining Co., Ld	1892	£200,000	150,000 50,000	£1 £1	18-10 £1	£4,873	Dr. £2,191	31-3-08	No. 12 of 1/- = 48 cents	....	$5½ sales
DOCKS, WHARVES AND GODOWNS.											
Fenwick (Geo.), & Co., Ld.	1889	$450,000	s 18,000	$25	$25	$42,986	Dr $7,421	31-12-08	$1½ for year ending 31-12-06	....	$10
Hongkong & Kowloon Wharf & Godown Co., Ld.	1886	$3,000,000	60,000	$50	$50	$550,000 i $26,806 s $40,000	$30,102	31-12-08	Final of $1½ making $3½ for 1907	....	$59 buyers
Hongkong & Whampoa Dock Co., Ld.	1866	$2,500,000	50,000	$50	$50	i $88,442 v $221,000	$345,162	30-6-09	Interim of $1½ for account 1909	..	$50 buyers
Shanghai Dock & Engin'g Co., Ld.	1906	Tls. 5,570,000	13) 55,700	Tls. 100	Tls. 100	Tls. 1,000,000	Tls. 6,261	30-4-09	Interim of Tls. 2½ for account 1910	6¼	Tls. 72½ s. e. d.
Shanghai & Hongkew Wharf Co., Ld.	1902	Tls. 3,600,000	36,000	Tls. 100	Tls. 100	b Tls. 697,257 r Tls. 50,000 e Tls. 125,000	Tls. 6,261	31-12-08	Final of Tls. 6 making Tls. 10 for 1908	7	Tls. 130 sellers
LANDS, HOTELS AND BUILDINGS.											
Anglo-French Land Investment Co., Ld.	1906	Tls. 2,500,000	3) 25,000	Tls. 100	Tls. 100	Tls. 35,000	Tls. 4,314	29-2-09	Tls. 6 for year ending 29-2-09	5¾	Tls. 105 buyers
Central Stores, Ld.	....	$751,845	16) 50,123	$15	$15	n. $1,000	$24,641	31-12-08	$1.[illegible]0 on old & 60 cts. on first new issue	....	$15 sales
Hongkong Hotel Co., Ld.	1866	$600,000 $400,000	12,000 8,000	$50 $50	$50 $25	$648,975 r $140	$19,272	30-6-09	Interim of $2.40 old and 40 cents new for a/c 1909	—	$77½ buyers $45 new b.
Hongkong Land Investment & Agency Co., Ld.	1889	$5,000,000	50,000	$100	$100	e $250,000	$26,475	31-12-08	Interim of Tls. 3½ for a/c 1909	6½	$102
Humphreys' Estate & Finance Co., Ld.	1887	$1,500,000	150,000	$10	$10	i $222,172 20) $43,261	$5,486	31-12-08	60 cents for 1908	7½	$8½ sales
Kowloon Land & Bldg. Co., Ld.	1889	$300,000	6,000	$50	$30	none	$278	31-12-08	$1½ for 1908	5	$30 sellers
Shanghai Land Investment Co., Ld.	1888	Tls. 3,900,000	78,000	Tls. 50	Tls. 50	Tls. 1,523,045 e Tls. 300,000	Tls. 142,404	31-12-08	Interim of Tls. 3 for 1909	6¾	Tls. 120 sales
West Point Bldg. Co., Ld.	1889	$625,000	12,500	$50	$50	none	$1,968	31-10-08	Interim of $2 for a/c 1909	8¾	$44
COTTON MILLS.											
Ewo Cotton Spinning & Weaving Co., Ld.	1895	Tls. 1,000,000	5) 20,000	Tls. 50	Tls. 50	Tls. 250,000 Tls. 40,098	Tls. 10,991	31-7-09	Tls. 11 for year ended 31-10-09	8¼	Tls. 139 buyers
Hongkong Cotton Spinning, Weaving & Dyeing Co., Ld.	1901	$1,250,000	125,000	$10	$10	e $20,000	$26,297	30-7-09	50 cents for year ending 31-7-08	..	$6 sellers

FAR EASTERN STOCKS AND QUOTATIONS—(Continued.)

STOCK.	When Established	CAPITAL.	NO. OF SHARES.	VALUE.	PAID UP.	RESERVE	AT WORKING ACCOUNT.	DATE.	LAST DIVIDEND.	Approximate Yield per cent per annum at Present Quotation.	CLOSING QUOTATIONS
International Cotton Manufacturing Co., Ld.	1895	Tls. 750,000	6) 10,000	Tls. 75	Tls. 75	Tls. 175,000	Tls. 8,372	30-9-09	Tls. 7½ for year ending 30-9-09	....	Tls. 75
Laou-kung-mow Cotton Spinning & Weaving Co., Ld.	1895	Tls. 800,000	8,000	Tls. 100	Tls. 100	none	Tls. 4,829	31-12-08	Tls. 4 for 1908	....	Tls. 101
Soy Chee Cotton Spinning Co., Ld	1895	Tls. 1,000,000	2,000	Tls. 500	Tls. 500	t Tls. 31,172	Tls. 15,911		Tls. 50 for 1906	....	Tls. 425
MISCELLANEOUS.											
Bell's Asbestos Eastern Agency, Ld.	1895	£5,377.10s	11) 8,604	12/6	12/6	£1,500	£682	31-12-08	15% for 1908	....	$10
China-Borneo Co., Ld.	1903	$720,000	8) 60,000	$12	$12	$40,000	Nil.	31-12-08	$1.20 for 1908	....	$12
China Light & Power Co., Ld. Do. do. Special Shares	1901 1907	$550,000	50,000 17) 50,000	$10 $1	$10 $1	none	$61,138	28-2-07	60 cents for year ending 28-2-06	10	$6 buyers
China Provident Loan & Mortgage Co., Ld.	1898 a	$1,250,000	7) 125,000	$10	$10	$100,000	$3,407	31-12-08	80 cents for 1908	----	$9½ sales
Dairy Farm Co., Ld.	1896	$300,000	40,000	$7½	$6	i $10,000 $10,000	$1,850	31-7-09	$1.20 for year ending 31-7-09	8½	$16½ sellers
Green Island Cement Co., Ld.	1889	$4,000,000	400,000	$10	$10	$13,000	$3,756	31-12-09	Interim of 35 cents for account 1909	10	$7½ sales & buy.
H. Price & Co , Ld.	1907	$120,000	19) 15,000	$10	$10	$5,000	$670	31-12-08	80 cents for year ending 31-12-08	8	$12
Hongkong Electric Co., Ld.	1889	$600,000	60,000	$10	$10	none	$5,195	29-2-09	$1.00 and bonus 10 cents for year ending 29-2-09	6	$20 sellers
Hongkong Ice Co., Ld.	1881	$125,000	5,000	$25	$25	k $150,000	$7,616	31-12-08	Interim of $2 for a/c 1909	10	$180 sellers
Hongkong Rope Manufacturing Co., Ld.	1883	$600,000	$60,000	$10	$10	$20,000	$8,790	31-12-08	Interim of $1 for a/c 1909	8½	$22½ sales
Maatschappij tot Mijn-, Boschen Landbouwexploitatie in Langkat	1902	Gs. 2,500,000	25,000	Glds. 100	Glds. 100	Tls. 547,500 f Tls. 63,914 21 Tls. 547,500	Tls. 316,682	31-10-08	Final of Tls. 12½ and bonus of Tls. 7½ for 1909	8½	Tls. 640 sales
Peak Tramways Co., Ld. Do. (New)	1907	$750,000	25,000 50,000	$10 $10	$10 $1	$20,000	$2,204	30-4-09	80 cents on fully paid shares & 8 cents on $1 paid shares for year ending 30-4-09	6 3	$13½ $1.40
Philippine Co., Ld.	1904	$750,000	75,000	$10	$10	none	Ps. 18,640	31-12-08	None	---	$1½ buyers
Robinson Piano Co., Ltd.	1900	$200,000	22) 4,000	$50	$50	$5,000	$61,138	31-8-08	6% for ½ year ending 30.9.07	---	$50
Shanghai-Sumatra Tobacco Co., Ld.	1902	Tls. 600,000	9) 30,000	Tls. 20	Tls. 20	Tls. 24,820 w Tls. 75,000	Tls. 5,250	31-10-08	Final of Tls. 5 making Tls. 8 for 1908	4½	Tls. 135 sellers
South China Morning Post, Ld.	1903	$150,000	6,000	$25	$25	none	Dr. $56,602	31-8-08	None	---	$23½
Steam Laundry Co., Ld.	1902	$100,000	20,000	$5	$5	none	$63	31-5-09	40 cents for year ending 30 5 09	7	$5½
Union Waterboat Co., Ltd.	1905	$500,000	15) 50,000	$10	$10	none	$172	31-12-08	60 cents for year-end. 31-12-1908.	5	$10½ sales
United Asbestos Oriental Agency, Ld.	1896	$100,000	10,000	$10	$4	$46,000	$342	31-5-09	60 cents per ordinary share for year ending 31-5-09	6½	$12½ buyers
Watson (A. S.) & Co., Ld.	1886	$900,000	90,000	$10	$10	$300,000 e) $25,000	$2,613	31-12-08	Final of 30 cents making 60 cents for 1908	6½	$7
Weismann Limited	1904	$30,000	3,000	$10	$10	$12,250	$67	31-7-09	10 per cent for year endg. 31.7.08.	....	$10 sales
William Powell, Ld.	1901	$105,000	15,000	$7	$7	none	$782	30-6-09	Final of 30 cents making 80 cents for year ending June 30th 1906	....	$3 sellers
RUBBERS											
Anglo-Malay Rubber Co., Ltd.	1905	£150,000	1,500,000	2/-	2/-	....	....	----	Interim of 12½% for a/c 1909	....	17/- sales
Balgownie Rubber Estate, Ltd.	1905 ††	$200,000	‡‡ 20,000	†† $10	†† $10	$7,400	$11,205	31-3-09	20% Interim for 1909	....	$82½ b. [S'pore]
Castlefield Rub. Ld., [fully pd.].	1906	£35,000	27) 32,650	£1	£1	none	....	----		....	60/- sales
Damansara (Selangor) Rub. Co.	1906	£110,000	25 110,000	£1	£1	nil.	£2,220	31-12-08	2/6 for 1909	....	16/6 buyers
Golconda Malay Rubber Co.	1907	£80,000	26 80,000	£1	£1	nil.	nil.	----		....	68/-
Highland & Lnd. Para R. Co. Do. Do. [fully paid] Do. Do. [partly paid]	1906	£310,000	=181,454 123,546	£1 £1	£1 15/-	£8,784	....	....	7½% for 1909 (interim.)	....	75/- sales Nominal
Kamuning (Perak) Rb. & Tin Co. do do A Shares do do B Shares	1909	£200,000	950,000 105,000	2/- £1	1/- £1	nil.	nil. 1,82	....		....	4/6 sales Nominal.
Kuala Lumpur Rubber Co., Ltd.	1906	£180,000	180,000	£1	£1	.... £4,000	....	....	3% for year ending 30-6-08	....	130/- sellers
Linggi Plantations, Ltd. (ord.) Do. Do. (7% pref.)	1895 Reconst	£100,000	+900,000 10,000	2/- £1	2/- £1	....	....	....	Interim of 40%=9d for a/c 1909.	....	27/- Nominal
Ledbury Rubber Estates Ltd. Do. Do. (contrib.)	1908	£125,000	§§ 60,000 §§ 40,050	£1 £1	£1 7/6	....	....	....		....	57/6 buyers 32/9 sales
Sagga Rubber Co. Ld.	1903	£200,000	24) 20,000	£1	£1	nil.	nil.			....	95/- buyers
Sandycroft Rubber Co.	1904	$100,000	1,000	$100	$100	$20,000	$1,275	31.1.08	Interim of 30% for 1909	....	$860 sellers
Sekong Rubber Co., Ld.	1903	£80,000	27) 80,000	£1	12/6	nil.	nil.	----		....	19/- sellers
Shelford Rubber State Ld.	1906	£65,000	65,000	£1	£1	nil.	£836	31.12.08	3% for 1908	---	32/6 sales
Singapore & Johore Rb. Co., Ld.	1903	$250,000	2,500	$100	$100	nil.	nil.	----		---	$310 buyers
Sungei Choh. Rb. State Co., Ld.	1907	£45,000	45,000	£1	17/-	nil.	nil.	....		...	33/6 buyers
Sungei Kapar Rubber Co.	1903	£110,000	23) 110,000	£1	£1	nil.	£3,448	31.12.	8½% Interim for 1909	---	75/-

LOANS AND DEBENTURES.	AGENTS FOR THE LOAN.	AMOUNT OF LOAN.	PAR VALUE.	OUTSTANDING BONDS.	WHEN PAYABLE.	CLOSING QUOTATIONS.
China Government, 7 per cent. Silver Loan 1886 E	Hongkong & Shanghai Banking Corporation.	Tls. 767,200	Tls. 250	1914	Mar. 31st and Sept. 30th each year until Mar. 31st, 1917	par. Plus interest
Hongkong Hotel Company, Ltd., 6 per cent. Mortgage Debentures of 1899 ‡	Hongkong & Shanghai Banking Corporation.	$750,000	$500	§ all	Half yearly, June 30th and December 31st	par
Shanghai & Hongkew Wharf Company, Ltd., 6 per cent. Debentures of 1902	Hongkong & Shanghai Banking Corporation.	Tls. 543,900	Tls. 100	....	Half yearly, June 30th and December 31st	Tls. 103½
Astor House Hotel Company, Ltd., 8 per cent. Debentures of 1903	Hongkong & Shanghai Banking Corporation.	Tls. 500,000	Tls. 100	....	Half yearly, January 1st and July 1st	102½
Chinese Engineering & Mining Co., Ltd., 6 per cent. Debentures of 1903 †	....	£500,000	¶	£431,960	Half yearly, June 30th and December 31st	par.
International Cotton Manufacturing Co., Ltd. 7% Debentures of 1901	Russo Chinese Bank	Tls. 500,000	Tls. 100	‖	Half yearly, March 31st and Sept. 30th	Tls. 97½.

a Authorized capital $2,000,000.
b Building Reserve Account.
c Capital Reserve Fund.
d Depreciation Fund.
e Equalization of Dividend Fund.
f Exchange and Investment Fluctuation Account.
g Gold Reserve Fund
h Exchange Reserve Account.
i Insurance Fund.
j Reinsurance Fund.
k Contingencies Account.
l Legal Reserve Fund.
m Authorized Capital
n Sinking Fund.
o Raw Sugar Reserve Account.
p Premium on New Issue.
q Boiler Repairs and Renewals Account
r Repairs and Renewals Account.
s Silver Reserve Fund.
t Depreciation and Repair Account
u Underwriting Suspense Account.
v Special account
w Special Works Fund.
x Extra Reserve Fund.
y 72,560 owned by the Company
z 7,200 shares unissued.
1 4,000 shares unissued.
2 First issue of 60,000 of which 10,411 unallotted.
3 5,000 shares unissued.
4 4,480 shares unissued.
5 5,000 shares unallotted.
6 1,616 shares unallotted.
7 75,000 shares unissued.
8 14,000 shares unissued.
9 17,000 shares unissued.
10 40,453 shares actually issued.
11 7,688 shares actually issued.
12 4,200 shares unissued.
13 500 shares unissued.
14 399 shares unissued.
15 22,277 shares unissued.
16 10,000 shares unissued.
17 Special shares are entitled to half of the profits.
18 Capital contributed by Chinese Government Kuping Tls. 5,000,000.
19 12,000 issued only.
20 Typhoon and Floods Insurance Fund
21 Special Cash Reserve.
22 1000 shares unissued.
23 10,000 shares unissued.
24 4595 part paid shares.
25 7,500 shares unissued.
26 10,000 shares unissued.
27 2,350 shares unissued.
28 25,000 shares unissued.
*Based on last year's dividend.
** Based on present dividend.
§ 216 held by the Company.
‖ Only Tls. 134,000 taken up.
¶ In certificates of £20 and £100.
‡ Redeemable in 10 years, or at the option of Comp. the Company giving 6 months notice.
† Redeemable at par at rate of £10,000 per annum from 31st December 1903 to 31st December 95.
*** Redeemable at par on 30th June, 1915.
Dr Deficit
†† Singapore dollars.
‡‡ 4,880 shares unissued.
× 16,756 shares unissued.
§§ 25,000 shares unissued.
— 4140 shares unissued.

SINGAPORE SHARE QUOTATIONS

(Courtesy Messrs. Fraser & Co., Brokers, Singapore, November, 1909)

Date of Formation	Capital	Capital paid up	No. of Shares Issued	Issue Value	Paid up	Reserve	Last Dividend	Name	Buyers.	Sellers.
								MINING		
1903	$300,000	300,000	30,000	10	10		12% for year ending 31-3-09	Belat Tin Mining Co., Ltd.	5.85	6.00
1907	$300,000	225,000	22,500v	10	10			Bruang Ltd.	5.00	5.50
1901	$600,000	600,000	60,000	10	10	25,000	10% for year ending 30-4-08	Bruseh Hydraulic Tin Mining Co., Ltd.	7.25	7.50
1903	£600,000	444,200	444,200a	1	1			Duff Development Co., Ltd.	6.50	6.75
1907	$400,000	375,000	37,500b	10	10			Kanaboi, Ltd.	1.75	1.85
1901	£60,000	60,000	60,000	1	1		2/- interim for 1909	Kinta Tin Mines, Ltd.	14.75	15.25
1906	£100,000	100,000	100,000	1	1			Kledang Tin Mining Co., Ltd.	1.60	1.75
1905	$150,000	99,000	9,900c	10	10	6,485.68	35% for year ending 31-12-07	Kuantan Tin Mining Co., Ltd.	3.50	3.65
1906	£120,000	120,000	120,000	1	1			Lahat Mines Ltd.	10.00	10.25
1906	£30,000	30,000	30,000	1	1			Malaya and Siam Corporation, Ltd.	....	5/-
1906	$450,000	450,000	45,000	10	10			Malacca Tin Dredging Co., Ltd.	2.50	2.75
1906	£250,000	179,500	500,000e	5/-	5/-			Pahang Consolidated Co., Ltd.	9/3	10/-
1907	£100,000	80,000	80,000f*	1	1			Pengkalen. Ltd.	7.75	8.00
1904	£100,000	80,000	80,000	1	1			Pusing Bahru Tin Mines, Ltd.	8.60	8.75
1904	£120,000	100,000	100,000d	1	1	6,000	45% for year ending 30-6-07	Pusing Lama Tin Mines, Ltd.	4.25	4.35
1907	$450,000	300,000	30,000d*	10	10			Rahman Hydraulic Tin, Ltd.	7.50	8.00
1905	£27,000	27,000	27,000	1	1		1/- for 1907	Rambutan, Ltd.	8.25	8.50
1892	£200,000	191,250	50,000	1	1	4,873	1/- paid January, 1901	Raub Aust. Gold Ming. Co., Ltd.	4.50	4.75
			150,000	1	18/10		1/- " " "	" " " *Contributory*	4.00	4. 5
1905	£40,000	40,000	40,000	1	1			Redhills Tin Mining Co., Ltd.	3.00	3.25
1900	$110,000	110,000	22,000	5	5		3% for year ending 22-1-09	Royal Johore Tin Mining Co., Ltd.	1.35	1.50
1907	$550,000	500,000	50,000l*	10	10			Salak South, Ltd.	4.75	5.00
1907	£80,000	80,000	80,000	1	1			Sempam Tin Mines, Ltd.	2.25	2.50
1906	$850,000	850,000	85,000	10	10	25,000	5% interim for 1909	Serendah Hydraulic Tin Ming. Co., Ltd.	8.35	8.50
1899	$230,000	230,000	23,000	10	10		3% for ½ year ending 31-12-08	Sipiau Tin Co., Ltd.	1.50	1.60
1909	$200,000	$150,000	15,000	10	10			Sungei Gau Tin Mining Co., Ltd.	2.75	3.00
1907	£90,000	70,000	70,000w	1	1		1/6 interim for 1909	Tekka, Limited	18.00	18.50
1906	£150,000	150,000	150,000	1	1		1/- interim for 1909	Tongkah Harbour Tin Dredging Co., Ltd.	15.00	15.50
1902	£160,000	160,000	160,000	1	1		2/- interim for 1909	Tronoh Mines, Ltd.	15.00	15.25
								RUBBER		
1909	£85,000	75,000	750,000	2/-	2/-			Allagar Rubber Estates, Ltd.	3/1½	3/3
1909	$120,000	105,000	105,000e‡	1	1			Alor Gajah Rubber Estate, Ltd.	1.25	1.30
1909	$750,000	600,000	140,000	5	5			Ayer Panas Rubber Estates, Ltd.	4.50	5.00
1905	£150,000	150,000	1,500,000	2/-	2/-		25% interim for 1909	Anglo-Malay Rub. Co., Ltd.	15/3	15/9
1905	$200,000	151,200	15,120c*	10	10	7,400	20% interim for 1909	Balgownie Rub. Estate, Ltd.	76.75	78.00
1904	£30,000	20,187 10/-	19,000	1	1		10% for year ending 31-12-08	Batu Caves Rub. Co., Ltd.	6.3.0	6.7.6
			4,750f	1	5/-					
1906	£80,000	70,000	70,000s*	1	1		5% for year ending 31-3-09	Batu Tiga (Selangor) Rubber Co., Ltd.	2.0.0	2.2.6
1909	£100,000	66,135	57,816	1	1			Bukit Kajang Rubber Estates, Ltd.	2.2.0	2.2.6
			22,184x*	1	7/6			" " " *Contributory*	1.3.6	1.4.6
1907	£30,000	22,500	18,000k*	1	1			Bukit Lintang Rubber Estates, Ltd.	2.18.0	3.0.0
			6,000	1	15/-			" " " *Contributory*	2.10.0	2.12.6
1903	£70,000	66,700	66,700g‡	1	1	2,000	15% interim for 1909	Bukit Rajah Rubber Co., Ltd.	8.15.0	8.17.6
1903	£35,000	30,000	30,000	1	1			Castlefield (K.) R. Estate, Ltd.	2.11.6	2.13.0
1909	200,000	62,500	12,500‡c	10	5			Cheras Rubber Estates, Ltd.	6.50	7.00
1909	£225,000	175,000	1750,000d	2/-	2/-			Chersonese (F.M.S.) Estates, Ltd.	2/3	2/4½
1904	£16,000	16,000	100,000	2/-	2/-		25% interim for 1909	Cicely Rubber Estates Co., Ltd.	1.5.0	1.6.0
			60,000	2/-	2/1-		26½% interim for 1909	" " " " 5% *Pref.*	1.5.9	1.7.0
1905	£75,000	62,007	62,007i	1	1	1,000	25% interim for 1909	Consolidated Malay Rub. Estates, Ltd.	6.12.6	6.15.0
1906	£110,000	102,500	102,500r*	1	1		12½% for year ending 31-12-08	Damansara (Selangor) Rubber Co., Ltd.	4.6.0	4.8.0
1909	£15,000	40,000	40,000z‡	1	1			Edinburgh Rub. Estates, (Selangor) Ld.	2.7.0	2.10.0
1909	$550,000	475,000	475,000f‡	1	1			Elphinstone Estates, Ltd.	1.95	2.00
1909	$300,000	300,000	300,000	1	1			Glenealy Plantations, Ltd.	0.80	1.00
1907	£80,000	70,000	70,000y*	1	1			Golconda Rubber Co., Ltd.	3.3.6	3.5.6.
1906	$680,000	680,000	40,000	17	17			Hevea Rubber Planting Co. Ltd.	16.00	16.50
1906	£310,000	305,000	305,000	1	1	8,784	7½% interim for 1909	Highlands & Lowlds. Para Rub. Co., Ltd.	3.12.6	3.14.0
1904	£50,000	30,000	30,000	1	1	2,500	5% for year ending 30-6-09	Inch Kenneth Rubber Estates, Ltd.	6.13.3	6.16.0
1909	$250,000	200,000	20,000	10	10			Indragiri (S.) R. and Gutta P. Co., Ltd.	18.00	18.50
1909	£200,000	182,500	950,000j	2/-	1/-			Kam. (P.) R. & T. Co., Ltd. "A" Shares	4/6	4/9
			105,000	1	1			" " " "B" "	....	nom.
1905	£65,000	65,000	65,000a‡	1	1			Kapar Para Rubber Estates, Co., Ltd.	4.9.0	4.11.0
1906	£180,000	180,000	180,000q	1	1		20% for year ending 30-6-09	Kuala Lumpur Rubber Co., Ltd.	5.5.0	5.7.6
1907	£100,000	90,000	90,000	1	1		7% for year ending 30-12-08	Labu (F. M. S.) Rubber Co., Ltd. *Contrib.*	3.6.0	3.8.6
1907	£320,000	234,355	198,930	1	1	3,000	10% interim for 1909	Lanadron Rubber Estates, Ltd.	4.5.6	4.7.6
			70,850	1	10/-		10% interim for 1909	" " " *Contributory*	3.2.6	3.5.0
1906	Gs 135,000	135,000	580	250	250			Langen Rub. and Cocoanut Co., Ltd.	275.00	295.00
1908	£125,000	75,000	60,000o*	1	1			Ledbury Rubber Estates Ltd.	2.8.6	2.10.0
			40,000z	1	7/6			" " " *Contributory*	1.6.6	1.7.6
1895	£100,000	98,324 8/-	883 244	2/-	2/-	4,000	65% interim 1909	Linggi Plantations Ltd., *Ordinary*	1.6.6	1.6.9
			10,000	1	1		7% for year ending 31-12-08	" " " 7% *Pref.*	....	nom.
1907	£140,000	118,000	118,000	1	1		3% for year ending 31-12-08	London Asiatic R. & Produce Co., Ltd.	3.3.0	3.50
1906	£400,000	300,000	185,000	1	1		10% interim for 1909	Malacca Rubber Plants., Ltd. *Ordinary*	8.12.6	9.0.0
			115,000	1	1		" " "	" " " 7½% *Pref.*	8.12.6	9.0.0
1909	$400,000	400,000	80,000	5	5			Pajam Limited	7.00	7.25
1909	$200,000	200,000	200,000	1	1			Pantai, Limited	0.85	0.90
1903	£30,000	22,500	225,000	2/-	2/-		25% interim for 1909	Pataling Rubber Estates Synd. Ltd.	1.6.6	1.7.3
1909	$500,000	450,000	45,000	10	10			Pegoh, Limited	22.75	23.00
1906	£85,000	85,000	85,000	1	1		12½% interim for 1909	Perak Rubber Plantations, Ltd.	3.5.0	3.6.6
1909	£60,000	36,875	15,000l	1	1			Rembia Rubber Estates Ltd. *Ordinary*	....	1.0.0
			35,000	1	10/-			" " " 6% *Cum. Pref.*	11/6	12/6
1904	£20,000	18 752	20,000	1	1			Sagga Rubber Company, Limited	5.0.0	5.2.6
1904	$100,000	100,000	50,000	2	2	20,000	60% interim for 1909	Sandycroft Rubber Co., Ltd.	16.00	16.50
1907	£100,000	80,400	48,000	1	1			Seafield Rubber Co., Ltd.	3.9.0	3.11.6
			48,000	1	13/6			" " " *Contributory*	2.19.0	3.1.0
1898	£30,000	30,000	300,000x	2/-	2/-	3,000	50% interim for 1909	Selangor Rubber Co., Ltd.	1.17.0	1.17.6
1906	£65,000	65,000	65,000g*	1	1		3% for year ending 31-12-08	Shelford Rubber Estate, Ltd.	1.13.3	1.13.9
1909	£120,000	100,000	100,000p*	1	1			Singapore Para Rubber Estates, Ltd.	1.13.6	1.14.6
1905	$500,000	500,000	5,000	100	100			Singapore Rubber Co., Ltd.	205.00	210.00
1903	$250,000	250,000	2,500	100	100			Singapore & Johore Rub. Co., Ltd.	310.00	315.00
1909	$250,000	60,000	10,000x*	10	6			St. Helena Rubber Coy., Ltd.	15.00	16.00
1906	£175,000	175 000	175,000	1	1		4½% for year ending 31-3-09	Straits Settlements (B.) Rub. Co., Ltd.	1.15.0	1.15.3
1907	£45,000	40,500	12,600	1	1			Sungei Choh Rub. Estate, Ltd. *Fully pd.*	1.19.0	2.0.0
			32,400	1	17/6			" " " " *Contributory*	1.15.0	1.17.6
1906	£110,000	100,000	100,000h*	1	1		7½% interim for 1909	Sungei Kapar Rubber Co., Ltd.	3.7.6	3.10.0
1907	£70,000	55,000	55,000	1	1			Sungei Salak Rubber Co., Ltd.	2.6.3	2.7.0
1904	£50,000	50,000	50,000	1	1			Sungei Way (Selangor) Rub. Co., Ltd.	3.2.6	3.5.6
1908	£150,000	60,000	36,000	1	1			Tebrau (Johore) Rubber Co.	1.12.6	1.13.9
			64,000	1	7/6			" " " *Contributory*	1.0.0	1.1.0
1909	$200,000	165,000	33,000v*	5	5			Teluk Anson Rubber Estate, Ltd.	4.25	4.50
1907	£200,000	170,000	170,000r*	1	1		5% for year ending 31-8-08	United Serdang (S.) R. Plantations, Ltd.	3.5.0	3.7.6
1909	$1,000,000	637,500	737,500m	1	1			United Singapore Rubber Estates, Ltd.	1.00	1.05
				1	.750			" " " " "	....	nom.
1903	£85,000	65,000	650,000n	2/-	2/-		10% for year ending 30-6-09	United Sumatra Rubber Estates, Ltd.	7/9	8/3
1904	£60,000	50,600	506,000	2/-	2/-		25% interim for 1909	Vallambrosa Rubber Co., Ltd.	1.5.3	1.5.9
								GENERAL		
1907	$1,500,000	1,065,150	25,000i*	10	10		10% for year ending 31/12/08	Eastern Smelting Co. Ltd.	....	11.50 n.
			116,450	10	7		10% for year ending 31-12-08	" " "	8.25	8.50
1898	$225,000	225,000	4,500	50	50	150,000	15% & 2½% bon. for yr. end. 31-12-08	Fraser & Neave, Ltd.	150.50	151.00
1905	$2,400,000	2,400,000	18,000	100	----	75,000	2½% for year ending 31-10-08	Howarth Erskine, Ltd.	67.50	70.00
			6,000	100			7% for year ending 31-10-08	" " 7% *Pref*	92.50	95.00
1896	$1,000,000	1,000,000	6,000	100	100	600,000	10% for year ending 31-12-07	Katz Brothers, Ltd. *Deferred*	----	117.50
			4,000	100	100		8% " " " "	" " 8% *Cum. Pref*	....	nom.
1901	$34,000	34,000	3,400	10	10		20% for year ending 31-10-08	Maynard & Co., Ltd.	22.50	25.00
1899	$875,000	875,000	6,000	100	100	175,000	5% for year ending 31/12/08	Riley, Hargreaves & Co., Ltd.	77.50	80.00
			2,750	100	100		7% for year ending 31/12/08	" " " " 7% *Pref.*	95.00	97.50
1903	$600,000	250,000	25,000o	10	10		10% for year ending 30-6-09	Singapore Cold Storage Co., Ltd.	12.25	12.50
1891	$30,000	30,000	600	50	50	23,000	10% for year ending 31-7-08	Singapore Dispensary Ltd.	53.00	55.00
1903	£400,000	400,000	400,000	1	1			Singapore Electric Tramways, Co., Ltd.	3/9	4/3
1884	$200,000	200,000	2,000	100	100	35,000	10% during 1907	Straits Ice Co., Ltd.	....	140.00
1890	$500,000	498,000	4,980c*	100	100	760,000q	5% interim for 1909.	Straits Steam Ship Co., Ltd.	185.00	187.50
1887	$3,000,000	3,000 000	300,000	10	10	130 000r 1,222,409	10% & 5% bon. for half yr. end. 30-9-09	Straits Trading Co., Ltd.	51.00	51.50

a { 152,800 unissued
  { 43,949 6% debenture
b 2,500 unissued
c 5,100 "
d 20,000 "
e { 54,500 £1 Prefs. issued
  { 45,500 £1 " unisd.
  { 100,000 5/- Ord. "
f 6,250 unissued
g 3,300 "
h 12,993 "
i 5,000 "
j £40,000 6% Debentures 22,000 unissued
k 75,000 unissued
l 94,000 "
m 35,000 "
n 20,000 "
o 175,000 unissued "A" shares
p Sundry Reserves.
q "
r 7,500 unissued
x 20,000 "
t 2,268 9/- paid shares
u 50,220 unissued
a* 16,756 "
c* 4,880 "
d* 15,000 "
e* 20 unissued
f* 20,000 "
g* 221 7½% Debentures
h* 10,000 unissued
i* 8,550 "
k* 6,000 "
l* 5,000 "
m* 25,000 "
o* 10,000 "
p* 4,000 "
q* 30,000 "
r* 7,500 "
s* £10,000 Convertible 6% Debentures issued
t* 10,000 do. unissued
n* 5,000 unissued
w* 20,000 "
x* 15,000 "
v* 7,000 "
e‡ 20,000 "
b‡ 5,000 "
d‡ 500,000 "
a‡ 15,000 "
z* 75,000 "
u* 15,000 "
c‡ 100,000 "
u 262,500 "
f‡ 10,000 "
5,000 "
30,000 "

DEBENTURES

Name	Amount	Buyers	Sellers
Howarth Erskine, Ltd. 6%	$ 600,000	....	3% d.
Riley, Hargreaves & Co., Ltd. 6%	284,000	1%	3% p.
Singapore Electric Tramways, Co., Ltd. 5%	£350,000	....	....
Singapore Municipal 5%	1,878,000	3%	6% p.
" " 4½% of 1907	1,600,000	3½%	5½% p.
" " 4½% of 1909	1,000,000	3½%	5½% p.
" " 4%	602,900	6%	7% d.

YOKOHAMA SHARE QUOTATIONS

Courtesy A. C. Hutton Potts, Share and General Broker, Yokohama, October, 1909.

STOCKS.	CAPITAL.	NO. OF SHARES.	ISSUE VALUE.	AMOUNT PAID UP.	RESERVE FUND.	AT WORKING ACCOUNT OR CARRIED FORWARD.	DATE.	LAST DIVIDEND.	FOR TERM.	CLOSING QUOTATION.
Brett & Co., Ltd.	-Y- 28,000	2,800	-Y- 10	-Y- 10			31-12-08	12½%	for 1 year	10 Sales.
Club Hotel Ltd.	185,000	1,850	100	100	3,000	-Y- 768.96	31-3-08	7%	for 1 year	70 Nominal.
Grand Hotel, Ltd.	500,000	5,000	100	100	10,000		30-6-09	4%	for ½ year	100 Sales
Helm Bros., Ltd.	186,000	3,720	50	50	25,000	-Y- 6,395.55	31-12-08	17½%	for 1 year	80 Sales,
Langfeldt & Co., Ltd.	100,000	2,000	50	50	10,000	6,296.63	30-6-09	5%	for ½ year	45 Sales.
C. Nickel & Co., Ltd. †	500,000	20,000	25	25		1,782.10	31-10-08	20%	for 1 year	45 Buyers
Yokohama Engine and Iron Works *	500,000	10,000	50	50	50,000	-Y- 29,421.19	31-5-08	10%	for 1 year	55 Nominal.
Oriental Hotel, Ltd., Ordinary }	250,000	3,000	50	50	306,090.49		31-8-07	12%	for 1 year	50 Nominal
Oriental Hotel, Ltd., Preference }		2,000	50	50				8%	for 1 year	50 Nominal.
The Union Estate and Investment Co., Ltd. ‡	1,000,000	10,000	100	100	6,000.00	1,753.03	30-9-08	7%	for 1 year	100 Nominal.

† 285,000 unissued.
‡ 475,000 unissued.

*-Y- 390,000 issued.
110,000 unissued.

DEBENTURE LOANS.	AMOUNT OF LOAN.	FACE VALUE OF DEBENTURES.	RATE OF INTEREST.	INTEREST PAYABLE.	CLOSING QUOTATION.
Brett & Company, Limited	11,500.00	100.00	7%	1 June and 1 Dec.	95 Sales.
Yokohama United Club	250,000.00	100.00	7%	30 June and 31 Dec.	100 Sales.
C Nickel & Company, Limited	50,000.00	100.00	8%	1 May and 1 Nov.	110 Sellers.
Oriental Hotel, Limited	350,000.00	100.00	8%	1 April and 1 Oct.	102 Sales.
Union Estate and Investment Co., Limited	250,000.00	100.00	6%	30 June and 31 Dec.	95 Sellers.

JAPANESE STOCKS.	FACE VALUE.	AMOUNT PAID UP.	LAST DIVIDEND.	DIVIDEND PAYABLE.	CLOSING QUOTATION.
Bonds & Debentures.					
Exchequer Bonds 2nd issue	-Y-100	-Y-100	5%	March and Sept.	-Y-100.40
Exchequer Bonds 3rd issue	100	100	5%	March and Sept.	,, 100 30
Consolidated Bonds (Seiri)	100	100	5%	June and Dec.	,, 97.20
War Bonds (Gunji)	100	100	5%	June and Dec.	,, 97.20
Imperial 5% Bonds	100	100	5%	March and Sept.	,, 98.20
Special 5% Bonds (issued 1906)	100	100	5%	June and Dec.	,, 97.20
Yokohama Water Works Bonds	100	100	6%	June and Dec.	,, 101.50
Yokohama City Public Loan Bonds	100	100	6%	March and Sept.	,, 103.00
Osaka City Harbour Construction Bonds	100	100	6%	June and Dec.	,, 101.50
Osaka City Public Loan Bonds	100	100	6%	June and Dec.	,, 101.50
Kawasaki Dock Yards Co.'s Debentures	100	100	7%	June and Dec.	,, 101.00
Tokyo Race Associations "	500	500	30%	June and Dec.	,, 110.00
Railways & Electric Trams.					
Tokyo Railway Company, Limited	50	50	5 2/5%	June and Dec.	,, 67.50
Yokohama Electric Tramway Company, Limited	50	50	6%	July and Jan.	,, 50.00
Keihin Electric Tramway Company, Limited	50	50	6%	June and Dec.	,, 57.00
Southern Manchurian Railway Co., Ltd.	100	20	6%	June and Dec.	,, 43 50
Hanshin Electric Tramway Co., Ltd.	50	50	12%	May and Nov.	,, 118.50
Cotton Spinnings.					
Kanegafuchi Cotton Spinning Company, Limited	50	50	14%	July and Jan.	,, 108.90
Fuji Gassed-yarn Company, Limited	50	50	14%	July and Jan.	,, 100.55
Tokyo Cotton Spinning Company, Limited	50	50	5%	July and Jan.	,, 45 90
Imperial Hemp Weaving Company, Limited	50	50	12%	July and Jan.	,, 71.00
Nisshin Boseki Kabushiki Kaisha	50	12½	5%	—	,, 16.35
Sugar & Beer Cos.					
Dai-nippon Sugar Refinery Company, Limited	50	50	....	May and Nov.	,, 16 00
Ensuiko Sugar Refinery Company, Limited	50	20	20%	June and Dec.	,, 42 95
Dai-nippon Beer Company, Limited	50	50	12%	July and Jan.	,, 78.80
Kirin Brewery Company, Limited	50	50	6%	July and Jan.	,, 50.50
Docks & Steamships.					
Yokohama Dock Company, Limited	50	33	12%	June and Dec.	,, 56.00
Uraga Dock Company, Limited	50	50	....	July and Jan.	,, 8.50
Kawasaki Dockyard Company, Limited	50	50	12½%	Feb. and Aug.	,, 54.00
Nippon Yusen Kaisha	50	50	10%	May and Nov.	,, 83 00
Hokkaido Tanko S. S. Company, Limited	50	50	14%	July and Jan.	,, 36.50
Miscellaneous.					
Tokyo Electric Light Company, Limited	50	50	12%	June and Dec.	,, 92 75
Tokyo Gas Company, Limited	50	50	13%	July and Jan.	,, 104 30
Yokohama Union Electric Light Company, Limited	50	50	14%	June and Dec.	,, 91.00
Fuji Paper Mills	50	50	6%	June and Dec.	,, 32.00
Otaru Timber Company, Limited	50	50	....	March and Sept.	,, 9.00
Hoden Petroleum Company, Limited	50	50	20%	April and Oct.	,, 55.70
Tokyo Rope Manufacturing Company, Limited	50	50	18%	June and Dec.	,, 101 50
Japan Horse Improvement Company, Limited	50	50	15%	March and Sept.	,, 6.00
Tokyo Stock Exchange Company	50	50	15 1/5%	June and Dec.	,, 162.60
Osaka Electric Light Company, Limited	50	50	16%	July and Jan.	,, 129.00
Kobe Electric Light Company, Limited	50	50	14%	July and Jan.	,, 105.00

BANGKOK SHARE QUOTATIONS

(Courtesy Messrs. Edwards & Co., Bangkok, Siam.)

NAME.	BUYERS.	SELLERS.	LAST SALES.	ESTABLISHED.	CAPITAL.	NO. OF SHARES.	ISSUE VALUE.	AMOUNT PAID UP.	RESERVE FUND	LAST DIVIDEND.
Siam Electricity Co, Ltd.	Tcs. 380	Tcs. 390	Tcs. 380	1901	£ 300,000	30,000	£ 10—	£ 300.000	Tcs. 491 338	12% Tcs. 4 bon.
Paknam Railway Co., Ltd	,, 200	,, —	,, 220	1893	Tcs. 400,000	5,000	Tcs. 80	Tcs. 400,000	,, 7,566	8%
Siam Tramway Co, Ltd	,, —	,, —	,, 140	1905	,, 1,450,000	6250 Shares 7250 Deb. 1000 P. Shares	,, 100	,, 2,230,000	,, 1,875	—
Meklong Railway Co, Ltd.	,, —	,, 106	,, 105	1907	,, 2,230,000	22.300	,, 100	,, 223,000	,, 28 000	5%
Bangkok Manufact. Co, Ltd.	,, —	,, —	,, 132	1898	,, 400 000	4 000	,, 100	,, 400.000	,, 60,000	7% per for 6 months
Bangkok Dock Co, Ltd.	,, —	,, 135	,, 155	1865	,, 1,000,000	10.000	,, 100	,, 950,000	,, 220,000	
Siam Steam Packet Co.	,, —	,, 57	Par	1898	,, 190 000	3,800	,, 50	,, 190,000	,, 34,000	5%
Siam Commercial Bank	,, 1,050	,, —	Par	1906	,, 3,000,000	3 000	,, 1,000	,, 3,000 000	,, 338,850	8%
Menam Motor Boat Co.	,, —	,, 100	,, 100	1905	,, 200,000	2,000	,, 100	,, 200,000	—	6%
Transport Co., Motor.	,, —	,, 90	,, 100	1906	,, 200 000	2,000	,, 100	,, 200,000	—	—
Jenderata Rubber Co *	,, —	,, £8.—	,, 90 (for six calls)	1906	£ 40,000	4.000	£ 10	£ 7.-paid	—	—
Bagan Rubber Co	,, —	,, —	,, —	1907	Tcs. 300 000	3 000	Tcs. 100	Tcs. 40 per share	—	—
Siam Steam Navigation Co, Ltd.	,, —	,, —	,, —	1909	,, 2 000 000	10,000	,, 200	—	,, 10,000	—
Siam Stone Works, Ltd.	,, —	,, 90	100	1909	,, 350,000	3 500	,, 100	,, 350.000	—	6% half year
Kombok Rubber Co.	,, —	,, —	19	1906	$ 300,000	30,000	$ 100	$7, per Share	—	—

ADDITIONAL SHANGHAI SHARE QUOTATIONS

STOCK	CLOSING QUOTATIONS	HIGHEST AND LOWEST PRICES DURING THE WEEK	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	LAST DIVIDEND	WHEN PAID
Oriental Consolidated Mining Co., Ltd.	27s. 6d.		G. $5,000,000	500,000	G. $10	G. $10	none	Interim of Gold .50 for 1909	June 30, 1909
Vulcan Iron Works, Limited	Tls. 400		Tls. 500,000	1,000	Tls. 500	Tls. 500	—	Tls. 50 for year ended 31.8.06	Nov. 1, 1906
Yangtsze Wharf & Godown Co., Limited	Tls. 125 nominal		Tls. 250,000	2,500	Tls. 10.	Tls. 100	Tls. 50,000	Tls. 15 for 1908	April 1, 1909
Wei-hai wei Land & Building Co., Limited	Tls. 10 nominal		Tls. 91,850	3,674	Tls. 25	Tls. 25	—	—	—
Union Estate & Investment Co., Limited	Y. 105 sales		Y. 1,000,000	10,000	Y. 100	Y. 100	—	First year	—
Hotel des Colonies Company, Limited	Tls. 9 sellers		Tls. 112,500	9,000	Tls. 12½	Tls. 12½	Tls. 29,783	6% for 1907	May 29, 1908
Kalee, Limited	$100 nominal		$100,000	4,000	$100	$100	—	2% for 1908	July 3, 1909
Anglo-German Brewing Co., Limited	$85 buyers		$100,000	4,000	$100	$100	none	$7 for 1907	Mar. 12, 1908
Butler Tile Works, Limited	Tls. 50 nominal		Tls. 60,000	1,200	Tls. 50	Tls. 50	—	Tls. 3 for year ending 31.3.09	June 8, 1909
Major Bros., Limited	Tls. 40 sellers		Tls. 300,000	6,000	Tls. 50	Tls. 50	—	—	—
Oriental Ice Company, Limited	Tls. 50		Tls. 130,000	2,600	Tls. 50	Tls. 50	—	First year	—
Scharff's Oil and Bone Mills, Ltd	Tls. 50		Tls. 200,000	4,000	Tls. 50	Tls. 50	—	First year	—
Shanghai Ice Company, Limited.	Tls. 13 sales		Tls. 200,000	8,000	Tls. 25		—	3% for 1907	Mar. 14, 1908
Shanghai Oil Co., Limited	Tls. 25		Tls. 175,000	7,000	Tls. 25	Tls. 25	—	First year	—
Campbell, Moore & Co., Limited.	$ 0 buyers		$12,000	1,200	$10	$10	$9,000	$3 for 1905	Apr. 2, 1906
Dunning & Company, Limited.	$50 sellers		$100,000	2,000	$50	$50	—	$5 year ending 28.2.08	Apr. 15, 1908
J. Llewellyn & Co., Limited	$50 buyers		$72,000	1,200	$60	$60	—	7.20 for 1908	Apr. 1, 1909
Lane, Crawford & Company	$137½ sales		$250,000	2,500	$100	$100	—	Final of 3% making 6% for 1908	June 8, 1909
Mondon (E. L.) Limited	Tls. 6 buyers	137½	Tls. 225,000	9,000	Tls. 25	Tls. 25	none	—	—
S. Moutrie & Company, Limited.	$48 sellers		$250,000	5,000	$50	$50	—	$4 for year ended March 31, 1908	June 18, 1908
Weeks & Company, Limited	$26½ buyers		$400,000	20,000	$20	$20	$40,000	Final of $1.20 making $2 for 1908	May 20, 1909
Dominion Rubber Co., Limited.	Tls. 4		Tls. 225,000	22,500	Tls. 10	Tls. 4	—	First year	—
Kalumpong Rubber Co., Ltd.	Tls. 42 sellers		Tls. 700,000	14,000	Tls. 50	Tls. 50	** Tls. 11,844.48	6% for 1907	Nov. 29, 1908
Senawang Rubber Estates Company, Limited	Tls. 100		Tls. 250,000	2,500	Tls. 100	Tls. 100	—	—	—
Senawang Rubber Estates Company, New	Tls. 75				Tls. 100	Tls. 75			
Tebong Rubber and Tapioca Estate, Limited	20s.		£76,000	76,000	£1	£1	—	—	—
Eastern Fibre Co., Limited	Tls. 10 nominal		Tls. 300,000	30,000	Tls. 10	Tls. 10	—	1/ ex. 2/6=Tls. 0.40 for 1908	August 5, 1909
Shanghai Mercury, Limited	Tls. 50 buyers		Tls. 105,500	2,100	Tls. 50	Tls. 50	—	Final of 6% making 10% for year ended 30.4.08	June 29, 1908
Shanghai Mutual Telephone Co., Limited	Tls. 62 buyers		Tls. 675,000	13,500	Tls. 50	Tls. 50	—	Tls. 3 for 1907	June 28, 1908
China Export, Import & Lumber Company, Limited	Tls. 78 nominal		Tls. 350,000	500	Tls. 100	Tls. 50	—	10 p. c. for year ending 29.2.08	May 1, 1908
China Printing Co., Limited	Tls. 42½		Tls. 750,000	1,500	Tls. 50	Tls. 50	—	7% 1908	Apr. 18, 1909
Dallas Horse Repository Co., Ltd	Tls. 25 nominal		Tls. 250,000	5,000	Tls. 50	Tls. 50	—	—	—
Hirano Mineral Water Co., Ltd.	Y. 15 sales		Y. 125,000	5,000	Y. 25	Y. 25	—	10%=yen 2½ for year ending 30th Sept. 08 Y. 1.20 for year ended Feb. 29	Apr. 26, 1909
E. E. Porter & Co., Limited	$50		$100,000	2,000	$50	$50	—	$6 for 1907	Apr. 22, 1908
Shanghai Electric & Asbestos Company, Limited	$20 sales		$125,000	5,000	$25	$25	—	8% for year ended Feb. 28, 09	June 21, 1909
Shanghai Electric Construction Company, Limited	£11 buyers	£11	£300,000	30,000	£10	£10	—	First year	—

DEBENTURES

LOANS		PRICE—PLUS ACCRUED INTEREST	AMOUNT OF LOAN	OUTSTANDING	NOMINAL VALUE	RATE OF INTEREST	WHEN PAYABLE
Shanghai Municipal Debentures	1892	Tls. 92½	Tls. 50,000	Tls. 45,400	Tls. 100	5 %	June & Dec.
do	1893	,, 96	,, 125,000	" 32,000	" 100	5½ ,,	Do
do	1894	,, 104½	,, 105,000	" 60,000	" 100	6 ,,	Do
do	1895	,, 92½	,, 115,000	" 32,600	" 100	5 ,,	Do
do	1896	,, 92½	,, 140,000	" 131,800	" 100	5 ,,	Do
do	1897	,, 92½	,, 268,800	" 268,400	" 100	5 ,,	Do
do	1898	,, 104½	,, 300,000	" 80,000	" 100	6 ,,	Do
do	1900	,, 96	,, 33,900	" 31,700	" 100	5½ ,,	Do
do	1901	,, 104½	,, 250,000	" 200,000	" 100	6 ,,	Do
do	1902	,, 104½	,, 150,000	" 150,000	" 100	6 ,,	Do
do	1903	,, 104½	,, 4 0 500	" 490,500	" 100	6 ,,	Do
do	1904	,, 104½	,, 214,500	" 214,500	" 100	6 ,,	Do
do	1905	,, 104½	,, 320,000	" 320,000	" 100	6 ,,	Do
do	1907	,, 104½	,, 250,000	" 250,000	" 100	6 ,,	Do
Chinese Imperial Government Loan	1886 E	,, 250	,, 767,200	" 351,400	" 250	7 ,,	Mar. & Sept
Shanghai Land Investment Co., Debentures	1890	,, 102	,, 250,000	" 250,000	" 100	6 ,,	May & Nov.
do	1892	,, 96	,, 250,000	" 250,000	" 100	5½ ,,	June & Dec.
do	1894	,, 101	,, 250,000	" 250,000	" 100	6 ,,	Mar. & Sept.
do	1896	,, 92½	,, 250,000	" 250,000	" 100	5 ,,	June & Dec.
do	1900	,, 102	,, 250,000	" 250,000	" 100	6 ,,	April & Oct.
do	1901	,, 102	,, 250,000	" 250,000	" 100	6 ,,	June & Dec.
do	1901	,, 96	,, 100,000	" 100,000	" 100	5 ,,	May & Nov.
do	1902	,, 102	,, 400,009	" 400,000	" 100	6 ,,	June & Dec.
do	1905	,, 102	,, 250,000	" 250,000	" 100	6 ,,	Do
Shanghai Waterworks Co., Debentures	1894	,, 103	,, 100,000	" 100,000	" 100	6 ,,	Mar. & Sept
do	1896	,, 92½	,, 100,000	" 100,000	" 100	5 ,,	June & Dec.
do	1899	,, 103	,, 50,000	" 50,000	" 100	6 ,,	Do
do	1900	,, 103	,, 100,000	" 100,000	" 100	6 ,,	Mar. & Sept.
do	1902	,, 103	,, 100,000	" 100,000	" 100	6 ,,	Do
do	1903	,, 103	,, 100,000	" 100,000	" 100	6 ,,	June & Dec
Perak Sugar Cultivation Co., Debentures	1902	,, 101	,, 200,000	" 200,000	" 100	7 ,,	April & Oct.
Shanghai Gas Co., Debentures	1897	,, 92½	,, 100,000	" 100,000	" 100	5 ,,	Do
do	1899	,, 102	,, 1,000,000	" 100,000	" 100	6 ,,	May & Nov.
do	1900	,, 102	,, 2,000,000	" 200,000	" 100	6 ,,	June & Dec.
Shanghai and Hongkew Wharf Co., Debentures	1902	,, 100½	,, 799,800	" 799,800	" 100	6 ,,	Do
Astor House Co., Debentures	1905	,, 103	,, 500,000	" 500,000	" 100	7 ,,	Do
British Municipal Council, Hankow	1901	Sh. ,, 105	H'kow Tls 100,000	H'kow Tls 100,000	" 100	7 ,,	June & Dec.
Shanghai Club Debentures	1907	,, 96	Tls. 170,000	Tls. 170,000	" 100	6 ,,	Do
Country Club Debentures		,, 97	,, 139,000	" 139,000	" 100	6 ,,	Do
do	1907	,, 97	,, 92,000	" 92,000	" 100	6 ,,	Do
Lane Crawford & Co., Debentures	1907	,, 100	,, 110,000	" 110,000	" 100	7 ,,	Mar. & Sept.
Anglo-French Land Debentures	1908	,, 102½	,, 250,000	" 250,000	" 100	6 ,,	June & Dec.

PHILIPPINE SHARE REPORT

JUNE 1ST, 1909

NAME	WHEN INCORPORATED	AUTHORIZED CAPITAL	ISSUE VALUE OF SHARE	NO. OF SHARES	SUBSCRIBED	PAID UP	RESERVE	WORKING %	DATE	LAST DIVIDEND	CLOSING QUOTATIONS
American Drug Store	1908	₱ 100,000	₱1,000	100	40	₱1,000	......	₱ 5,000	Jan. 4, 1909..	......	No sellers.
*Banco Español Filipino	1851	3,000,000	200	15,000	8,439	200	₱225,000	......	......	7% for year 1908....	200 buyers
Benguet Consolidated Mining Co....	1903	2,000,000	2	1,000,000	495,000	2	......	38,000	Feb. 2, 1909..	......	₱1.10.
Benguet Commercial Co., Ltd....	1908	200,000	10	20,000	7,360	10	......	......	......	7% for year 1907....	₱10.
Bua Mining Co	1905	300,000	100	3,000	2,620	100	......	2,000	Aug. 18, 1909.	......	₱100.
Cadwallader-Gibson Lumber Co	1908	1,000,000	100	10,000	8,650	100	......	......	......	......	No sellers.
*Camote-Clayton Mining Co	1909	400,000	10	40,000	20,000	10	......	......	......	......	₱10.
*Compania Maritima	......	1,018,000	200	[5,090	5,090	200	......	......	......	......	₱40 sales
*El Varadero de Manila	......	350,000	100	3,500	3,500	100	......	......	......	......	Sellers 70
Electrical Supply Co., Inc.	1909	100,000	100	11,000	500	72	......	......	......	......	No sellers
Export & Import Lumber Co	....	200,000	200	1,000	1,000	200	......	......	......	......	No sellers.
*Fabrica de Hielo de Manila	1894	350,000	50	7,000	7,000	50	......	......	......	18% for year 1908...	₱75 sales.
*Germinal Cigar Factory	1900	500,000	500	1,000	1,000	500	₱285,000	14,806	......	6% for year 1908 and 6% on capital......	650 buyers.
H. E. Heacock Co	1909	100,000	100	1,000	800	100	......	......	......	First year..........	No sellers.
*Headquarters Mining Co. (Inc.)...	1908	600,000	10	60,000	35,000	10	......	......	......	......	₱6 buyers.
Insular Lumber Co	1907	2,000,000	200	10,000	9,000	200	......	......	......	......	No sellers.
Juan Seiboth Co., Ltd	1908	150,000	20	7,500	500	20	......	......	......	First year..........	......
*La Concha Button Factory	1905	75,000	100	750	750	100	......	......	......	10% for year 1908...	₱110 sellers.
Lambert, Springer Co	1908	200,000	1,000	200	80	1,000	......	......	......	......	No sellers.
Luzon Stevedoring Co	1909	250,000	25	10,000	4,200	25	......	......	Sept. 15, 1909	15%..........	₱25.
Mindanao Herald Publishing Co...	1907	15,000	100	150	75	100	......	......	Dec. 31, 1908.	½ of 1% interim for 1908	No sellers.
Newspaper Publishing Co.	1907	400,000	100	4,000	3,740	100	......	......	......	......	......
Minas Carbon de Batan	1902	1,000,000	200	5,000	1,523	200	......	136,812	......	......	200
Walter E Olsen Co., Inc	1909	500,000	100	5,000	2,033	100	......	......	......	First year..........	No sellers.
Paracale Gold Dredging Co	1907	£10,000	£1	10,000	9,000	£1	......	......	......	......	£1.10 s.
Palomar Park Amusement Co	1908	300,000	......	300,000	60,312	.50	......	......	......	......	₱1.
Phil. Hemp Machine Co., Ltd	1907	1,000,000	100	10,000	8,500	100	......	......	......	......	₱100
Philippine Publishing Co	1907	600,000	200	3,000	2,181	200	......	......	Mar. 1st, 1909	₱3 a share for 1908..	₱50
Port Banga Lumber Co	1908	100,000	100	1,000	934	100	None.	40,000	First Saturday in January..	None..........	No sellers.
The Philippine Gold Dredging Co..	1907	200,000	10	20,000	20,000	10	......	......	......	......	No sellers.
*Philippine Co., Ltd	......	750,000	10	7,500	7,500	10	......	......	......	......	₱5 buyers.
Philippine Rosin & Turpentine Co..	......	150,000	1	150,000	70,000	1	......	......	......	First year..........	......
Philippine Exploration Co	1908	2,000,000	10	200,000	90,000	10	......	......	......	......	No sellers.
The Rosenstock Pub. Co	1908	75,000	10	7,500	6,000	10	......	......	......	......	No sellers.
*San Nicolas Iron Works	......	300,000	500	600	600	500	......	......	......	......	₱200 sellers.
San Mauricio Gold Mining Co	1908	4,000,000	200	20,000	.....	....	......	......	......	First year..........	₱200.
Tarlac Railway Co	1906	150,000	100	1,500	1,500	100	......	₱9,674.75	June 30, 1908.	......	No sellers.
Union Hemp Machine Co	1909	50,000	10	5,000	2,600	10	......	......	......	......	No sellers
Zamboanga Cold Storage Co	1903	40,000	100	400	200	100	₱8,500	......	May 1st, 1909.	20%..........	₱120.

* John T. Macleod's share list

PHILIPPINE BONDS

	DATED	AUTHORIZED	ISSUED	OUTSTANDING	PAR VALUE	RATE OF INT.	WHEN PAYABLE	LAST QUOTATION
Philippine Friar Land Bonds	Feb. 1st, 1904	$7,000,000	$7,000,000	$7,000,000	$ 100	4%	Feb. 1, 1914	104[illegible]
Public Works and Permanent Improvement Bonds	March 1, 1905	$5,000,000	$2,500,000	$2,500,000	$ 100	4%	March 1 1915	104[illegible]
Do.	Feb. 1, 1906	......	$1,000,000	$1,000,000	$ 100	4%	Feb. 1, 1916	104[illegible]
Manila Sewer and Water Works Improvement Bonds	June 1, 1905	$4,000,000	$1,000,000	$1,000,000	$ 100	4%	June 1, 1915	104[illegible]
Do.	Jan. 2, 1907	......	$2,000,000	$2,000,000	$ 100	4%	Jan. 2, 1917	104[illegible]
Philippine Railway First Mortgage Four per cent Thirty Year Sinking Fund Gold Bonds	July 1. 1907	$15,000,000	$5,736,000	$5,736,000	$1000	4%	July 1, 1937	97

*Payment of interest guaranteed until maturity or redemption by the Philippine Government.

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THE FAR EASTERN REVIEW

COMMERCE ❂ ENGINEERING ❂ FINANCE

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DYNAMIC FLIGHT

By GEORGE GORDON BLACK

FOREWORD

The attitude of the daily papers in regard to the science of mechanical aviation is calculated to give the attentive reader the impression that human flight, as we understand it, is of comparatively recent birth. While this view is to a certain extent justified, it must not be thought that the present stage of development has been reached solely by the efforts of those daring men whose extraordinary feats are a matter of common report in the press. As a matter of fact most of our existing knowledge of the technique of free flight has been gradually accumulating for several generations, but, on account of certain material impediments, it has not hitherto been found possible to put the various rules and principles evolved into practical operation. The daily papers, however, are scarcely to be blamed for their lack of attention to the efforts of the pioneers. A series of disasters such as has marked the history of aerial flight was not calculated to promote enthusiasm in the subject and, indeed, it became the custom finally to regard the early experimenters as somewhat wanting in mental balance. Fortunately that feeling has now passed away—may we hope for ever. Visual evidence is a difficult thing to combat and, though many are still looking for a sign of the practical utility of the aeroplane, such feats are being recorded every day in increasing numbers as to justify us in assuming that the very near future will see the air as an important—nay, the most important of all—means of transport. The doubters I would ask to bear in mind that at the moment we are undergoing a stage of development. Man has to learn to walk and birds to fly. It took years to bring the bicycle, the locomotive, the steamship, and the motor car to their present degree of perfection, and so must the aeroplane go through the same progressive stages before it finally emerges in a commercially successful state. How many of these stages we have passed through and how many we have yet remaining to cope with would be difficult to say at the moment.

In considering the great question of the navigation of the air, therefore, let due credit be given not only to those great men who are now making history but also to those dead pioneers who not only devoted their entire lives to the study of the subject but, in many cases, paid also the toll that all great engineering feats inevitably exact.

PART I.—HISTORICAL

"Soon shall thine arm, unconquered steam, afar
Draw the slow waggon, or impel the rapid car;
Or on wide-waving wings expanded bear
The flying chariot through the fields of air."
—Darwin.

There can be no question that the subject of human flight—with its, to them, suggestion of the supernatural—had an extaordinary interest for the ancients. History, right back to the earliest days and even in mythology, teems with references to impossible flying men and still more impossible flying machines.

In dealing with the historical aspect of aerial navigation, however, it is obviously outside the scope of a practical journal such as The FAR EASTERN REVIEW to describe the machines in question, for the most casual glance at such illustrations of them as exist is sufficient to convince one of their impracticability. While a few certainly show evidence of careful thought, each and all are characterized by an entire disregard of the most elementary principles of the scientific side of aviation and may, in consequence, be relegated to the regions of absurdity.

Leonardo da Vinci, who was born in 1452 and died in 1519, was the first human being of whom we have any record who gave the subject any reasonable and rational thought. Da Vinci—whose name is familiar to all as a painter and sculptor—devoted an extraordinary amount of his time to the study of anatomy, and it was mainly through this study that his attention was drawn to the possibilities of human flight. His particular inclinations leant towards a machine of the "flapping wing" type and eventually he evolved a design which showed that his knowledge of aeronautics was profound. No machine was, however (so far as history records), actually built by him.

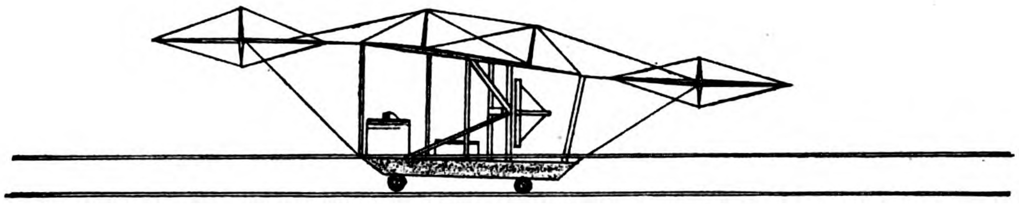
Da Vinci's manuscript constitutes a most clever exposition of the subject considered even in the light of present day experience. That he thoroughly understood the relation between the centre of pressure and the centre of gravity cannot be disputed, while his notes on equilibrium and stability are equally well thought out.

The series of disasters that are recorded from da Vinci's time until the beginning of the last century are mainly concerned with such devices as the great artist suggested, but so very unfortunate were they in their results that experimenters—that is to say those who lived to tell the tale—got disheartened and gradually acquired the conviction that man was not intended to fly at all.

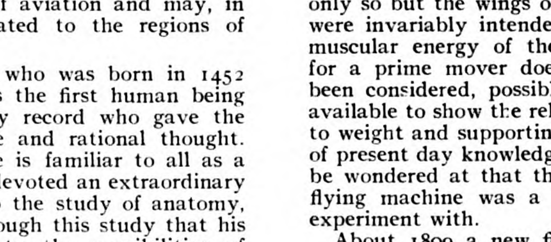
In scanning the records of the inventors to whom I refer it is a noticeable fact that the trend of thought of practically every one of them was to imitate the flight of birds. Not only so but the wings or corresponding devices were invariably intended to be worked by the muscular energy of the pilot. The necessity for a prime mover does not appear to have been considered, possibly because no data was available to show the relation of power required to weight and supporting surface. In the light of present day knowledge it is not, therefore, to be wondered at that the flapping wing type of flying machine was a disheartening thing to experiment with.

About 1809 a new figure sprang up in the English aeronautical world in the person of Sir George Cayley. Sir George went to work in what was then an entirely original manner.

(Continued on page 420.)



SIR HIRAM MAXIM'S AEROPLANE OF 1893



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SOME HONGKONG BANK REMINISCENCES

Among the interesting speeches made at the Third Annual Dinner of the Hongkong and Shanghai Banking Corporation was that of Sir Thos. Sutherland, G.C.M.G., who reviewed the early history of this prosperous institution and his own connection with its organization. In the course of his address he said:

"Only yesterday I took from a drawerin my office a copy of the original prospectus ofthe Hongkong and Shanghai Banking Company, and I find my name inscribed in that prospectus as its first deputy chairman. I beg to add, moreover—I trust you will forgive the egotism —that, without the assistance and without the co-operation of any person at the moment, I wrote that prospectus with my own hand, and but for that little historical fact in all probability the Hongkong and Shanghai Banking Corporation would not have come into existence. (Loud cheers.) The relation of that little history may very shortly be told, and it may be an arrangement to those younger members of our company who are about to start out in life, with, no doubt, greater advantages than I ever enjoyed, who when they wish to start a new bank for themselves know exactly how to set about it. (Laughter.) I happened to be in the beginning of the year 1864 a passenger on a small P. & O. steamer that was then making the voyage from Hongkong to Swatow, Amoy, and Foochow. Her name was Manila, and her speed was not of an excessive character, in reference, at all events, to these modern times. I believe she was able to accomplish something like a speed of eight knots or thereabouts, under the most favorable circumstances—(laughter) —and, therefore, within even a short voyage like that, gave plenty of opportunity for reflection, for reading, and for improving one's mind generally, as, of course, all young men must endeavour to do. Well, there are two outstanding features in connection with that memorable voyage of mine which rest in my recollection most keenly even to the present day. The first of these is one which I am sure you will never anticipate, and that is that I tried, with all the skill and power I could possibly use, to induce the Chinese cook of that vessel to understand what was meant by a *diner à la Russe*, then an almost unknown combination in the Far East, and I regret to say that my efforts were unsuccessful in that respect. But the other recollection, which is paramount, is that there were on board that ship a number of copies of 'Blackwood's Magazine' which contained certain articles on the subject of banking, and especially on the highly meritorious character of Scottish banking as compared with any other kind of banking in any other part of the world. (Cheers.) And I absorbed these articles; they fascinated me. I had never had a banking account in my life. (Laughter.) I had only an account with the Compradore, which was generally overdrawn—(loud cheers and laughter); but it appeared to me that, if a suitable opportunity occurred, one of the very simplest things in the world and one of the wisest would be to start a bank in China more or less founded upon Scottish principles. (Cheers.)

The idea must have lain latent in my mind for several months or perhaps for longer, but at all events the crisis arrived in this shape. One day a mail steamer called the Ottawa arrived in Hongkong commanded by a man who is well known in China, a Captain Eastleigh. I went on board, as usual, to transact my business with the captain, and after I had heard all he had to say he invited me to receive in his cabin a private communication of a most momentous character. This was to inform me that the good people in Bombay had recently started a Royal Bank of China, that they had appropriated to themselves two-thirds or three-fourths of the share capital, but that they were going to send an ambassador on to China immediately in order to distribute the one-fourth or one-third, their remaining capital, to create a Board of Directors and to earn all the profits out of the local community throughout China. My friend Capt. Eastleigh said this was a golden opportunity for me, that I might obtain some of those shares if I only paid proper respect to the expected ambassador, that I might even hope at some time or other to arrive at the position of a Director of the Royal Bank of China. Well, gentlemen, I reflected a good deal on the subject. I thought to myself that if the people in China were so unpatriotic, were so lacking in public spirit that they would submit to a Bombay enterprise coming along in this undignified position—I thought they would deserve whatever fate might befall them. But the result of my cogitation was that, inasmuch as I knew that we had in China many thriving and prosperous insurance companies founded upon the basic principle of co-operation among ourselves, I thought we ought to endeavour to create a bank of our own on the same principles, and that very night I wrote the prospectus in question as it stands now in the archives of the Hongkong and Shanghai Bank. (Cheers.) The capital was only five millions of dollars, a highly modest sum when we think of the position of the Bank to-day. (Cheers.) I took the prospectus next day to my friend Mr. Pollard, who was at that time the most eminent counsel in Hongkong, and I said to him, "You may make a business of this." He saw it in a glance, he saw a fee of ten thousand dollars immediately—(laughter)—and he took the prospectus round to all the leading firms in Hongkong, and with the exception of the firm of Jardine, Matheson and Co., every firm of repute and distinction at that time in China put their names down as members of the provisional committee of this Bank with its five million dollars of capital. The prospectus was sent out with the names of the provisional committee. Within less than a week the whole of the capital that we could possibly allot to Hongkong was taken up and stood at a considerable premium. The ambassador from the Royal Bank of China arrived in due course a fortnight or three weeks afterward. His name, I recollect, was Mr. Noel Porter. He could not get anybody to take a single share in his capital; he could not discover a possible Director anywhere, and I need hardly tell you that within an incredibly short space of time the Royal Bank of China was wound up in Bombay with somewhat unfortunate if not ignominious results. That is really the history of the genesis of this great undertaking. I felt perfectly confident that in due time we should arrive at great results, even although we began in a somewhat modest capacity. Those results we witness here to-day, those results we have been conscious of now for many years, and they are due to some extent no doubt to fortuitous conditions which favoured the Bank at its commencement."

The above is one of the most valuable contributions to the financial history of the Far East and serves to demonstrate the possibilities that lie in small beginnings. Sir Thomas Sutherland may well be proud of the structure, the conception of which stands to his credit as well as the expedition with which he perfected the organization that now stands as a monument to British enterprise in the Far East.

BAMBOO PAPER

The manufacture of paper from bamboo pulp has been successfully demonstrated in Formosa where the Mitsu Bishi Paper Mill Company is installing a plant with a capacity of about 300 tons of paper a month. The experiments were carried out at the scientific station at Kobe. According to a report submitted by Consul Reat of Tamsui this company has secured a concession of 8,000 acres of bamboo forest near Kagui and makes the following reference to the bamboo paper industry and the advances made by science to bring it to a state of perfection:

"The making of paper from bamboo is no recent discovery. For generations the Chinese have carried on this industry in their homes, but their methods are exceedingly primitive—no chemicals entering into their process. The Chinese use only bamboo shoots, for the evident reason that the shoots can be more readily worked up.

"The new company will use all kinds of bamboo, young and old, but particularly a variety

called 'kei chiku,' of which there is an unli mited quantity. The question of the supply of raw material will ever puzzle the company, for the growth of bamboo is very rapid. It verily grows inches in a night.

"The experiments so far have been made by mixing bamboo pulp and wood pulp in varying proportions, according to the quality of paper desired. But it is intended later to make paper entirely from bamboo pulp; the only difficulty standing in the way of that process now is that the cost of an entire bamboo paper is more than the cost of wood-pulp paper. It is expected that all the machinery of this company will be installed and the plant will be in full operation by June, 1910. The process employed will be a modified sulphite, specially prepared by the company from bamboo. There are eight different stages in the manufacture: (1) The preparation of the bamboo by chopping into small pieces from one to two inches in sizes; (2) cooking or digesting in a digestor with sulphite or calcium; (3) washing with water; (4) bleaching with powder or electricity and washing again; (5) drawn through a machine to press into the form of web; (6) drying by steaming; (7) rolled by winding machine, or cut into sheets.

"The pulp will be shipped to Japan in the form of rolls or sheets, where it will be manufactured into two grades of paper—news and bo k. On the Formosan pulp factory, and on the mills at Kobe, where the finished bamboo product will come forth, much interest will be centered by the great paper industries of the world."

The success of this enterprise will serve to open up one of the most extensive industries in the Far East and make for a solution of the problem of maintaining an adequate supply of material to meet the increasing demand for paper throughout the world.

"HALLEY'S COMET"

The following is issued as an appendix to a bulletin issued by the Rev. George M. Zwack, S. J., secretary of the Philippine Bureau, under the title "The Return of Halley's Comet and Popular Apprehensions," and contains some data regarding Halley's Comet.

" 'Halley's comet' received its name in honor of the famous English astronomer Edmund Halley (1656-1742), who, at the time of its appearance in 1682, calculated its orbit and, after establishing its identity with the comets of 1531 and 1607, pronounced it to be a periodic comet, predicting its return for 1759, or the end of 1758. The prediction came true. The comet passed perihelion on March 13, 1759, only thirty-two days earlier than had been computed by the French mathematician and astronomer Clairaut. Though Halley had died in 1742, posterity did not forget his claim on the comet, which was thenceforth called 'Halley's comet.'

"Two English astronomers of the present time, Messrs. Cowell and Crommelin, have, by patient research and laborious calculations, traced the history of our comet as far back as the years 87 B. C. For every one of the twenty-five returns postulated by the period of the comet since 87 B. C., they found historical proofs. Their dates are as follows:

Year.	Perihelion Passage.
87 B. C.	Aug. 15
12 B. C.	Oct. 8
66 A. D.	Jan. 26
141 A. D.	Mar. 25
218 A. D.	Apr. 6
295 A. D.	Apr. 7
373 A. D.	Nov. 7
451 A. D.	July 3
530 A. D.	Nov. 15
607 A. D.	Mar. 2
684 A. D.	Nov. 26
760 A. D.	June 15
837 A. D.	Feb. 25
912 A. D.	July 19
989 A. D.	Oct. 9
1066 A. D.	Mar. 27
1145 A. D.	Apr. 6
1222 A. D.	Sept. 10
1301 A. D.	Oct. 23
1378 A. D.	Nov. 9
1456 A. D.	June 8
1531 A. D.	Aug. 26
1607 A. D.	Oct. 27
1682 A. D.	Sept. 15
1759 A. D.	Mar. 13
1835 A. D.	Nov. 16
1910 A. D.	Apr. 19

"The present appearance is, therefore, the twenty-seventh of which we have certain knowledge. There can be no doubt that the history of the comet could be traced much farther back by means of the cuneiform inscriptions of Assyria, but this difficult piece of work seems to have not yet been attempted.

"While the mean period of Halley's comet as given in astronomical books is 76.37 years, the shortest interval between two successive perihelion passages has hitherto been 74.88 years (1607-1682) and the longest 79.37 years (451-530). All records will, however, be broken by the present visit of the comet. If it passes perihelion on April 19, 1910, only 74 years and 155 days will have elapsed since its passage in 1835! These inequalities are due to the perturbations in the comet's motion caused by the attraction of the planets, especially of Jupiter and Saturn.

"At *perihelion* (point of least distance from the sun) Halley's comet is, on the average, only 54,000,000 miles from the center of the sun, while at *aphelion* (point of greatest distance) it is 35.4 times as far as the mean distance between earth and sun, or, in round figures, 3,288,000,000 miles, which is about 496.4 million miles—or more than five times the distance between sun and earth—beyond the orbit of Neptune, the farthest *known* planet.

"At its present return, the comet was first discovered by Doctor Wolf, director of the astrophysical observatory on the Königstuhl near Heidelberg, Germany. Two photographic plates exposed to the computed place of the comet in the morning of September 11, 1909, showed the visitor. On the following day Lick Observatory, California, and Helwan Observatory, Egypt, likewise obtained photographs of the comet, which was then too faint an object to be visible, even in the largest telescopes. On September 15, however, it was for the first time observed visually with the 40-inch refractor of Yerkes Observatory, Wisconsin, by Professor Burnham, as a very faint object. Since then it has slowly grown brighter, at times more rapidly than was anticipated.

"Several authorities were of the opinion that the comet could be seen by means of field-glasses about the beginning of February, if not earlier. This appears to be not the case. At Manila Observatory the comet was first seen with the 19-inch equatorial on November 25, 1909. It was again picked up in the same telescope in the evening of January 29 and 30. On the latter occasion it was a relatively easy object with the 5-inch finder attached to the larger instrument, but appeared to be below tenth magnitude.

"In view of these facts, the reader will probably not be too much surprised if, on reading the following statements concerning the phenomena to be expected, he finds only vague language. Astronomical positions are expected to be given at least down to minutes of arc, and the moment of a celestial occurrence to fractions of a minute of time. He may remember the story of the discovery of Neptune. Though this planet had never been seen *consciously* by human eyes (it had indeed been observed repeatedly, but always been mistaken for a star of ninth magnitude), its existence was deduced from the small differences between the computed and observed places of the planet Uranus. From these perturbations the French mathematician Leverrier calculated the whereabouts of an unknown disturbing planet so accurately that Galle, at Berlin, found the latter on the night of September 23, 1846, within half an hour after commencing the search and only 51′ (a little more than 1.5 times the angular diameter of the sun) from the indicated place. But the same methods and the same genius applied to the computation of cometary motion are far from giving equally good results. Suffice it to mention only that the position of the center of mass of a comet can not be determined as accurately as that of a planet, and of the mass of a comet we know practically nothing. Of a few of them, such as have come sufficiently close to the earth, we know a limit which their mass can not reach, but how indefinitely they may be below it, who can tell? If these facts are considered, the wonder is not that discrepancies exist, but that they are not vastly greater, especially if we bear in mind that in the case of Halley's comet the difference between the longest known period of revolution and the present shortest one is only twenty days short of five full years.

"After this apology for astronomical calculations (and incidentally for ourselves!) we venture to make the following statements:

1. The comet will probably reach eighth magnitude about the middle of February. A good pair of field glasses ought then to show it in the western sky, approximately 44° east and 21° north of the sun's apparent place. As the comet will set about three hours after the sun, the advent of darkness may be awaited.

2. During the first third of March it may become possible to see the comet with the naked eye. But this can not last very long, since on March 16 it will set about half an hour after the sun, being some 5.5° north of it; whence it will be lost in the glow, unless very bright.

3. About March 23 sun and comet will be in superior conjunction, that is, as seen from the earth, both bodies will have the same right ascension, the comet being beyond the sun and about 5.5° north of it. Of course, there will be no possibility of seeing the former, owing to the glare of the latter.

4. Toward the middle of April the comet may be looked for in the morning sky, where it will rise before the sun, being 2.5° south of the point of sunrise on April 15. It ought to be an easy object for the unaided eye. It will be noticed that, while in the west the comet appeared to plunge headlong toward the horizon, it is now backing into view, as the tail is always pointing away from the sun. For some five weeks the difference between the rising of the comet and sunrise will increase; but six days before inferior conjunction on May 19, it will again decrease until the comet is once more lost to view in the splendor of the sun shortly before conjunction.

5. According to the latest information on hand, the exact time of perihelion passage, or closest approach of the comet to the sun, is April 19.65 Greenwich time, which, in the ordinary way of counting dates, is 11 o'clock and 36 minutes a. m. of April 20, Insular time (one hundred and twentieth meridian east of Greenwich).

6. After perihelion the comet will approach the earth very rapidly and, therefore, quickly increase in size until the time of inferior conjunction with the sun and shortest distance from the earth. At this time the *apparent* motion of the comet will be so swift that the latter will seem to pass through more than 45° in right ascension in the short space of four days.

7. Earth and comet will be in heliocentric conjunction at 10 a. m. of May 19 (Insular time). Messrs. Cowell and Crommelin, of Greenwich Observatory, have calculated that the comet, as seen from the earth, will pass across the sun's disk nearly centrally, entering from the west and accomplishing the transit in about one hour. Though the sun will then be high in heaven in this part of the world, there is very little hope that the comet can actually be seen on the sun's disk. According to all that we know of the nature of comets, even their nuclei are not dense enough to intercept the sun's rays sufficiently to reveal the comet's presence between the sun and the eye of the terrestrial onlooker.

8. If the present appearance of Halley's comet rivals the former, the comet will be a magnificent object. As to the probable length of its tail, nothing can be stated. The greatest length on record was 60° (in 1456); that is, two-thirds of the distance from the horizon to the zenith. How close to the sun the comet will be visible is likewise unknown. The great

comet of 1882, for instance, was actually first discovered on the day of its perihelion passage, when only 2° from the sun.

9. While *before* conjunction the comet preceded the sun in the morning, it will follow the same *after* this event and, therefore, may again be observed in the evening. But it will rise rapidly in the sky, tail foremost, and fade away very quickly, since it now not only recedes from the sun, but also from the earth, comet and earth moving in almost opposite directions. Before the middle of June it will probably be lost to the naked eye; at the end of June field glasses will no longer show it; and at the end of July it will be invisible even in the largest telescopes. When, after about seventy-six years, Halley's comet will again appear to the eye of man, neither the writer of these lines, nor the vast majority of those for whom they are written, will gaze upon its weird but harmless beauty—for us the end of the visible world will have come."

AMERICAN GOLD DREDGING PRACTICE CHALLENGED

The following correspondence, subscribed to by Mr. W. H. Cutten, a British expert on matters appertaining to gold dredges and dredging, appears in the *Mining Journal* of January 5th, which will be of the greatest interest to mining men in the Far East and especially those who are interested in the rich placer properties now being developed in the Philippines and elsewhere. The letter follows:

"To the Editor of *The Mining Journal:*

"SIR,—I have received a copy of the Risdon Ironworks latest catalogue of dredging machinery, and it is of considerable interest to me. I notice that the Risdon company claim to have purchased from Mr. Postlethwaite certain patent rights for the various working parts of gold dredges, but I fail to see what value these rights may have, seeing that all the inventions claimed (with the exception of the tailings stacker) were in use in New Zealand for fully ten years before Mr. Postlethwaite left that country. The tailings stacker was not only in use in New Zealand, but it had been made by Mr. Postlethwaite's firm to my designs at least twelve months before he left for San Francisco. The tailings stacker was my own invention, and was first used by myself.

"In the Risdon catalogue figures are given comparing the working of one of their dredges with that of an Eastern built American dredge (presumably a Bucyrus), and curiously enough these figures more than confirm my opinion of the superiority of the open over the close connected bucket, as described in my article in your journal of November 20. The two dredges mentioned have each 5 cubic ft. buckets, dredging to a depth of 30 ft. The gravel is similar and also the bottom in each case, consequently the comparison is fair. The Eastern built dredge with close connected buckets lifted 475,504 cubic yards for the twelve months' work, while the open bucket dredge lifted 517,989 yards for the same time, or just about 9 per cent. more gravel, although the former would probably be running 22 buckets per minute and the latter only 12. The lost time is 8.8 per cent. more. The repairs are 14.5 per cent. more. The power required is 50 per cent. more, and the average cost per cubic yard of gravel lifted is 24 per cent. more with the close connected bucket than with the open connected one. (Vide Risdon catalogue, pages 18 and 19.)

"In my article I conceded that the close connected would lift more than the open connected bucket in easy ground or loose gravel; but it appears from the Risdon company's figures that the ground must be exceptionally loose, for even with moderately easy ground the open buckets are far ahead.

"I understand that my figures have been questioned with regard to the comparison of the American with the English type of dredges, and it is stated that the Oroville dredges are working in much rougher ground than the New Zealand or Burma dredges, although so far no one has challenged my figures in print.

"It may interest sceptics to know that I spent two weeks on the Oroville, the Folsom, and the Yuba fields watching quite a number of the dredges working, and I never saw any ground that would compare in roughness with some that I have seen worked in Burma and personally worked in New Zealand, where it is not an uncommon thing to see a stone of over 2 tons weight come up on the stone hooks, or to see three to four stones coming up on the buckets at the same time between the bow and the top tumbler, and none of them less in size than a 200-lb. cement cask. I herewith enclose a photo of a stone lifted by a 4½-ft. bucket and photographed on the deck of the dredge in New Zealand. Many other such stones were lifted by the same dredge, but the interest taken in them flagged after the first half-dozen or so.

"As it appears that some dredging companies, under the advice of American experts, are still content to waste their shareholders' money by ordering American type dredges to work under unsuitable conditions, I should like to hear if any of your many readers could mention a single instance in either Russia, Africa, or South America where an American dredge is paying its way; for although I can hear of many failures, so far I have not heard of any success. Can anyone enlighten me?

"In my last letter, published in *The Mining Journal* on December 4, in reply to 'Kotuku,' I notice that the last paragraph but one, as printed, was unintelligible. It should read: 'Since "Kotuku" calls attention to the growing habit of English companies ordering their machines direct from the shipyard, a word may not be out of place. Gold dredging is a business which requires special knowledge and experience, and every dredge should be designed to suit the conditions under which it has to work, and so long as people order stock pattern machines and try to make the ground suit that machine, so long shall we have commercial failures."

We cannot say from experience that the claim made by Mr. Cutten is borne out in every respect, but we are certainly impressed with the great lack of interest taken by American dredge manufacturers in catering to foreign business. We do know that the only dredge used in the Philippines has not been a success and that the only successful work accomplished in the Philippine placer fields is to the credit of New Zealand dredges. We do not say that the American dredge brought out to the islands would not work satisfactorily if it were installed on ground to which it was adapted, but we have not heard of any attempt on the part of the manufacturer to repair the damage to the reputation to American practice in the Philippines by the presence of this unsuccessful dredge alongside the successful New Zealand machinery. If it be true that American manufacturers pay as little attention to the installation of their dredges in Russia, Africa or South America as they do in the Philippines, then we are inclined to the belief that Mr. Cutten has ample province for his challenge.

At the present time there are two New Zealand dredges operating in Paracale and orders have been placed for at least six more. The first New Zealand dredge was installed by the Paracale Gold Dredging Company, a New Zealand company. Before this company became interested its experts visited the ground, tested it thoroughly, and studied the character of the soil and the natural conditions of the country. Then they returned to New Zealand and put up a dredge suited to the work. This dredge was installed in due course and for over a year has been working continually and paying big dividends.

Now, during all this time there has not been an American dredge expert in the Philippine Islands representing an American manufacturer. They send their catalogs and seem prepared to carry on a mail order business. The one mail order referred to was filled some few years ago and the result was failure in Masbate. The same dredge is down in Paracale being tried out again, but so far without success.

During the last year paying placer ground covering an area approximately 50,000 acres has been prospected and probably one quarter of it is more or less tested. In this work the prospectors have had the steady cooperation of New Zealand experts and New Zealand capitalists stand ready to put in dredges and operate them on the most liberal terms. They will install a dredge, for instance, on any tested ground without expense to the prospector or owner of the ground and divide the net receipts with him. There is every indication that during the next year there will be 500 New Zealand dredges at work in the Philippines, and it will be due largely to the enterprise of New Zealanders, who have not attempted to dump their dredges in the islands whether adapted or not, but have studied every phase of placer mining and will not permit the installation of any of their dredges liable to prove a failure.

The challenge made by Mr. Cutten is one that must not remain unanswered if American dredging practice is to find favor abroad. The American manufacturer has always been satisfied to supply the home market, and when an order is placed from outside the United States it receives scant attention. And we take great pleasure in directing all dredge manufacturers' attention to the words of Mr. Cutten: "Gold dredging is a business which requires special knowledge and experience, and every dredge should be designed to suit the conditions under which it has to work, and so long as people order stock pattern machines and try to make the ground suit the machine, so long will we have commercial failures."

And we might add that the manufacturer, who permits his dredges to be installed indiscriminately as referred to above, will find that no matter how perfect his standard may be, he will suffer from the reputation that dredging failures are sure to establish.

THE MANILA CARNIVAL

The Philippine Carnival Association for 1910 proved the success anticipated as a handsome balance in the treasury gives evidence. The features of the year appear to have been the extensive industrial exhibits from almost every province in the Philippines and the marked interest taken by the Filipinos in the series of lectures on industrial topics that marked every afternoon of the week and especially those under the direction of the Bureau of Agriculture.

The atendance from the provinces had the desired effect of bringing the representatives of the different Filipino interests together and so wholesome has been this influence that already the organization of an Agricultural Society among the hacenderos has been effected and will, no doubt, result in the advancement of this important field of endeavor.

Much credit is due Director General Meehan and his able staff who overcame every obstacle to success and gained the co-operation of the insular government, the commercial community, and the Army and Navy, without which it would have been impossible to carry the project to the degree of success attained.

There is reason to believe that out of the carnival will grow a permanent yearly exposition of Philippine industries as the main feature, and a few days of fun and frolic thrown in. If this results the Philippine Carnival Association will have served a good purpose, and as the years pass we may look forward to a better understanding among the different peoples of the archipelago drawn together by mutual interest in the display of their handiwork and the discussion of subjects full of instruction and of benefit to all.

THE HON. CHARLES BURKE ELLIOTT, SECRETARY OF COMMERCE AND POLICE PHILIPPINE ISLANDS

The recent appointment of Justice Charles Burke Elliott, of the Philippines Supreme Court, to be a member of the Philippine Commission with the portfolio of Secretary of Commerce and Police, succeeding His Excellency, the Governor-General, in that capacity, has greatly strengthened the legal end of the Commission. Secretary Elliott is a jurist of national reputation and is widely known as an author of a number of authoritative legal works.

Secretary Elliott was born in Morgan County, Ohio, January 6th, 1861. He attended the Morgan County schools and later the Marietta College. He then took up his studies in the State University of Iowa from which institu

tion he graduated with the degree of L.L. B. in 1881. Later, in 1895, the University conferred on him the degree of L.L. D. and in 1904 Marietta College honored him likewise. In 1889 the University of Minnesota conferred the degree of Ph. D.

In 1884 he married Miss Edith Winslow, of Muscatine, Iowa. After being admitted to the bar he practiced law in Minneapolis and was elected judge of the Municipal Court in 1890, which position he held until 1893 when he was appointed judge of the District Court, Fourth District, Minnesota, in which office he remained until 1904 when he was elevated to the Supreme Court of Minnesota. He remained in this capacity until he accepted the position as associate justice of the Philippine Supreme Court in August, 1909.

It might be said that this position was offered him several years ago, but he declined at the time to be later induced to reconsider in 1909, with the result that President Taft who was anxious to have the brilliant jurist identified with the Philippine administration, succeeded in inducing him to accept a career in the dependency. On February 10, 1910, his nomination as Secretary of Commerce and Police was approved by the Senate.

Secretary Elliott is a republican in politics. He was Professor of Corporation and International Law at the University of Minnesota from 1890 to 1897. He is a member of the International Bar Association, The American Bar Association, Society Comp. Legislation, International Society Comp. Jurisprudence and Political Science, Berlin and American Society of International Law. He is the author of "The United States and Northwestern Fisheries," 1887; "The Law of Private Corporations," 1900; "The Law of Public Corporations," 1898; "The Law of Insurance," 1902; "Minnesota Practice," 1900. He has also written many magazine articles of note on legal and other subjects besides delivering many addresses on similar subjects.

THE HON. NEWTON W. GILBERT, VICE-GOVERNOR OF THE PHILIPPINE ISLANDS

The Hon. Newton W. Gilbert, Secretary of Public Instruction, who was recently appointed Vice-Governor of the Philippines, is forty eight years of age. He was born in Worthington, Ohio, in 1862, and at the age of 13 moved with his parents to Angola, Indiana. It might be said that he got his first start as a printer, serving his apprenticeship at the "cases" in the small printing offices of Worthington and Angola. By this means he secured the necessary funds to acquire an education, and later supported himself while attending the Ohio State University by teaching. It was a struggle, but he succeeded by continual application to secure admission to the bar at the age of 24. This meant that he studied law every moment he could find to devote to the task. About the time he was admitted to the bar, he was elected surveyor of Steuben County, Indiana, in which position he remained five years. In 1894 he ran for the office of District Attorney for his home district, and while he ran ahead of the ticket he was not elected. In 1896 he was elected state senator from his district, and in 1908 he received a commission as captain in the 157th Indiana Volunteers, enlisting for the war. His regiment did not proceed farther than Tampa. He returned after the regiment had been disbanded and completed his term as state senator. In 1900 he was elected Lieutenant Governor of his state and served a four-year term in that capacity. In 1904 he accepted the nomination for Congressman from the Twelfth District, Indiana, one of the strongest Democratic districts in the state and carried it by a majority of 2,000 against a candidate that had represented it for years.

Mr. Gilbert was a member of the Taft party that visited the Philippines and other points in the Orient in 1905, and it was during this trip that he became interested in the American problem in the islands. Upon his return to the United States he considered an appointment as judge of the Court of First Instance in the Islands, and in 1906 resigned prior to the state Republican convention where he would have been nominated without opposition and accepted the judgeship, arriving in the Islands in September of that year. He served in this capacity until June 1908 when he was appointed a member of the Philippine Commission. On March 1st he was given the portfolio of Secretary of Public Instruction, and on February 10, 1910, was confirmed as Vice-Governor, retaining his portfolio.

Vice-Governor Gilbert is a firm believer in industrial training, and this branch of general instruction is being made the feature of his administration.

While young in the U. S. Congress, Mr. Gilbert was selected as member of the Committee on Revision of Laws of the United States, on which important work a code committee had been working for over 12 years. Since that time the report of the committee of which he was a member has been acted upon and enacted into law. He is the President of the Board of Regents of the Philippine University and is identified with every public movement for the benefit of insular conditions. He is a member of the Army and Navy Club at Washington, the Columbia Club of Indianapolis, and the Army & Navy, Elks, University and Columbia Clubs of Manila.

THE SUBJECT OF IRRIGATION

The attitude of progressive governments to the subject of irrigation is evidenced by the yearly increase of areas benefited by these works. Irrigation, however, to be successful must be adapted to the needs of the community served to secure the best results, and the discussion of irrigation problems is of inestimable value in pointing the way to general improvement. India, more than any other country, has demonstrated the value of irrigation works, and large sums are being spent annually in this direction by the Indian Government. Indeed, so greatly favored is this line of Government endeavor that the Indian Press, from time to time, are disposed to criticise the Government for not spending more in irrigation works and less in the building of railways. *Capital*, the leading financial paper of India, in discussing this question, gives some valuable information on this subject. Of the above criticism *Capital* says:

"Criticism of this kind is usually resented, and perhaps one reason for this is to be found in a feeling on the part of the Government that they are called upon to do in this country work that would elsewhere be left to private enterprise. On the other hand, it can not but be observed that in respect to various branches of enterprise—including those of railway construction and irrigation—the people of India have some justification for the belief that the State desires monopolies. In lands where private enterprise undertakes the development of communications and of irrigation, the respective Governments do not impose arbitrary restrictions and do, as a general rule, go the length of giving all reasonable assistance when private capital is offered for employment in works of obvious public utility. If, for instance, we turn to the United States of America, we find it on record that of the total acreage under irrigation fully 95 per cent. is under private enterprises. In 1908 something less than 4 per cent. was irrigated by supplies furnished by the Government under its reclamation projects. Over 12,500,000 acres are being irrigated through the medium of what may be called the class of private irrigators; but to this class the Irrigation Branch of the Department of Agriculture and the various Western Experiment Stations are endeavoring to extend all the assistance within their power. The fact that assistance of this kind is given through the Department of Agriculture deserves special notice. To a very large extent, American irrigation works have for their immediate object the making of barren soil productive; and in this country, as well as in others, one of the main purposes of such works is the safeguarding of agriculture in the first place, and in the second place its improvement.

"Possibly, the State monopoly system that prevails in India offers advantages over private enterprise in respect to the important subject of management. But it is questionable whether the same keen interest is taken in operation and maintenance as in construction. A few months ago, the Chief of Irrigation Investigations of the U. S. Department of Agriculture enumerated certain questions without suggesting answers to them; and they are questions that could probably not be answered very readily even in this country, where the operation of irrigation works has been carried on for many more years than in the United States. The questions are as follows:—'Which is the best and cheapest water-supply? How much water is required to irrigate an acre of land? What grades shall be given to the channels in order to avoid erosion on the one hand and sedimentation on the other? How soon may settlers be expected to utilize both land and water and what form of water contract will deal justly with both company and water-user?' To none of these questions could one stereotyped answer be given, for the reply in each case must be affected by local conditions. But, broad as they are, the questions deserve careful consideration. *Apropos* of one of them, it is interesting to note that the authority cited above regards the system of proportioning water for canals on an acreage rate as productive of great waste. A fixed quantity of water cannot always meet the requirements of a definite area of land. The amount of water required varies from year to year and under the influence of many conditions. At the same time it may be observed that the solution of irrigation problems is perhaps much easier in India than in the United States. For one thing, the latter country has devoted its best energy to construction rather than to operation; for another, the reclamation of arid lands occupies a much larger share of the attention of irrigation in that country than it requires in this. Yet even when the soil is properly prepared, it is no easy matter to gauge the quantities of water sufficient for the needs of cultivated plants. Unquestionably, there is a wide field for investigation along this line and it must be studied carefully before the foundation of scientific irrigation can be said to be laid. Where it is not studied, and even where study has led to no decisive results, there is a grave risk that much of the irrigation that is carried on is of an improper kind."

GENERAL

Mr. John S. Hord, until recently Collector of Internal Revenue for the Philippine Islands, was recently selected as President and General Manager of the Spanish-Filipino Bank, Manila. Mr. Hord has been identified with the battle for free entry of sugar and tobacco into the United States and has been greatly interested in the protection of Philippine products from defamation by the trusts interested.

Mr. A. H. Hewitt, Chief Engineer of the Green Island Cement Company, was a visitor in Manila during Carnival week. He was greatly interested in the progress made in permanent construction in which the product of the Green Island Works has been so extensively utilized.

"*New Windmill Catalogue.*"—Fairbanks, Morse & Co. have just issued a very complete Catalogue on Windmills, Tanks and Pumps.

For the first time in the history of the Windmill business a complete treatise on the theory and practical construction of Windmills is now published so that the purchaser is enabled to judge for himself why wood is better material for constructing Windmills than steel. Technical information of the most important character never before published is given in this catalogue. These and the suggestions for installing Water Works Systems are of interest to all who have use for Windmills.

Special attention is called to the "FEMCO UNDERGROUND FORCE PUMP." This is a new type of Pump more universal in its application and more simple in construction than any pump of this class heretofore placed on the market.

Fairbanks, Morse & Co., Chicago, Ill., will send a copy of this catalogue to interested parties. Kindly mention this publication.

DYNAMIC FLIGHT

(Continued from page 415.)

Disregarding the flapping wing principle altogether he endeavored to devise a soaring apparatus in which a prime mover took the place of the natural motive power of birds and in which the buoyancy of the machine was attained by sustaining planes. On this system he built an aeroplane of some 300 square feet surface by means of which he demonstrated the advantages of setting the two planes at a dihedral angle in order to secure lateral stability. Unfortunately no engine was attached—a sufficiently light engine was not obtainable in those days—but Sir George Cayley states that on several occasions it succeeded in lifting a man from the ground. Later it is said that a primitive type of internal combustion motor, propelled by gunpowder, was affixed to a similar machine, and with this Sir George's coachman actually made an ascent for a very short distance. The pilot, however, when he found the aeroplane rising, promptly jumped out and was hurt.

To Sir George Cayley therefore goes the honor of devising the prototype of the modern monoplane, and although he did not actually bring his machine to anything like the state of perfection of aeroplanes as we know them, yet the principles of flight, as it is practiced to-day, are embodied in Sir George's machine.

Three other Englishmen—Henson, Stringfellow, and Wenham—were the next to give their attention to the subject. These gentlemen were contemporaries and flourished about 1840. In 1843 Henson designed a monoplane of which an illustration is given herewith. The striking similarity between this machine and the more modern Antoinette is most obvious although the dimensions given in Henson's patent specification show that his wings had nearly 15 times as much supporting surface as those of Mr. Latham's 1909 machine. The actual dimensions are:—Main wings 150 feet span by 30 feet depth (thus giving a total area of 4500 square feet). In addition there was a tail of 1500 square feet. The weight given was 3000 lbs. and Mr. Henson proposed to drive the machine by means of a very light steam engine affixed to the car close under the middle of the wings. The engine itself was rated at 20 horse power, while its weight—including boiler (filled with water)—amounted to 600 lbs.

A model of this monoplane was made by Henson and Stringfellow, but they found that a number of alterations were required before it was sufficiently stable to fly satisfactorily.

Mr. F. H. Wenham was the first (1866) experimenter to point out the convenience of dividing up the supporting surface and arranging it in series of planes placed one above the other, thus evolving the precursor of the modern biplane and triplane—which derive their names, of course, from the number of planes into which the supporting area is divided.

So many engineers had by this time entered the field of aeronautical research that it becomes quite a difficult matter to select the few whose achievements have helped to put us on the road to success. The difficulty is further increased by the fact that until about 1903 investigations were—with one exception (Maxim)—carried out entirely with models and gliders. Now, while it is admitted that models are a fairly satisfactory way of gleaning information, their performances *as* models are no indication at all of what they could do were they converted into full-sized machines. Gliders, however, being built to carry a pilot, proved to be a most useful means of teaching the aeronaut how to maintain lateral and longitudinal stability to control and direct his machine and the values of various areas and curves for supporting surfaces. The range of action of the glider was, however, extremely restricted as it could not be used unless certain favorable atmospheric conditions prevailed and then only from a specially prepared hill. There was thus a limit to the extent to which the practical work could go, for, until 1903, it is a question if there was an engine in existence sufficiently light and powerful, *combined with reliability*, to provide the motive power required to raise a man and machine from the ground and enable them to make a flight independent of the state of the wind.

Of the investigators to whom I refer there are a few names that stand out prominently from the many, and of these Mr. Lawrence Hargrave of Sydney, New South Wales, is referred to first, he being the immediate successor to Mr. Wenham in the order of prominence. Mr. Hargrave's work covered a long period of years beginning about 1879 when he first attracted attention by inventing the well-known box kite. With four of these connected to each other by means of a strong line and a seat slung onto the lower kite Mr. Hargrave made numerous ascents and descents. The kites—which had a total area of 232 square feet—were made of calico stretched over American redwood frames and weighed 38 lbs., the seat and line 7 lbs., and the aeronaut 177 lbs. With the wind blowing at 21 m. p. h. the pull, indicated on a spring balance, amounted to 240 lbs. *Engineering* of February 15th, 1895, gives the following particulars of Mr. Hargrave's experiments:—

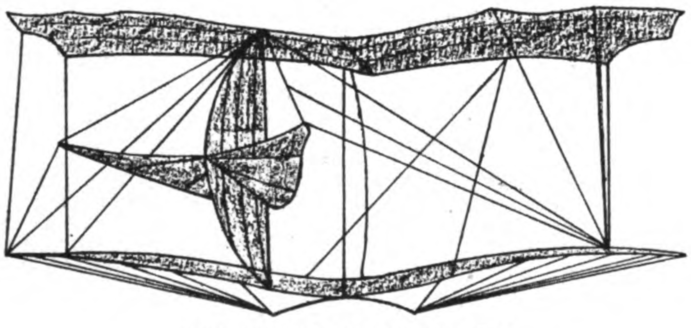
Kite	Breadth of each cell		Depth of each cell		Dist. between the forward end of the forward cell to point of attachment of kite line.		Weight of kite		Length of each cell.		Dist. between cells		Lifting surface of kite.
	ft.	in.	ft.	in.	ft	in.	lbs.	ozs.	ft.	in.	ft.	in.	sq. ft.
A.	5.	0	1	10½	1.	7	5.	7	1.	11	2	1	38.5
B.	5.	0	1.	1½	1.	7	5	14	1.	11	2	4	38.5
C.	7.	8½	1.	1¼	2	8	9	8	2	3	4	5	69 0
D.	6.	6	2.	[illegible]½	2.	3	9.	0	2.	6	3.	6	65 0
E.	9.	0	2.	6	2.	10	14.	8	2.	6	4.	0	90.0

Subsequent investigations, conducted by Mr. Hargrave, were carried out with models driven by compressed air, but these, so far as we are concerned, are of comparatively little interest.

In 1884 Mr. Horatio Phillips of Wealdstone, Essex, patented what is known as the "dipping edge" section of planes. Phillips had worked for years on the problem of finding the most efficient shape for sustaining planes and eventually evolved the now universally used concavo-convex form in which the amount of convexity and concavity are plotted out in a certain definite ratio to the velocity of the sustaining air current.

We now reach the period from which the dawn of the modern flying era may be said to date—that is, with the advent of Otto Lilienthal of Germany, Professors Langley and Chanute of America, and Sir Hiram Maxim in England. Lilienthal—whose experiments are classical—was the author of a work, "Bird Flight as a Basis of the Flying Art," which was published as far back as 1889. In this he gave the results of many years' study and afterwards (1890) commenced putting them into practice by a series of gliding experiments.

After building several different forms of machine he eventually evolved a biplane glider of the type shown herewith. In this the two main planes had a span of 18 feet and a total supporting area of 100 square feet. From the top of a hill 50 feet high (in Berlin) he made many successful glides, but eventually, in 1896, when trying the machine in the Rhinerow Hills, he, by some means or another, lost control and was killed.



LILIENTHAL'S GLIDER OF 1895

Professor Langley and Dr. Graham Bell built two models (in 1893-96) on the lines of what are known as tandem monoplanes—that is, two supporting planes mounted one behind the other on a framework. Both have flown for a mile under their own power over the Potomac River. Langley's model weighed 24 lbs. and measured 15 feet in length. The planes were set at an angle of 135° to each other and a small tail plane was affixed at the rear. The motive power was steam (the plant weighed 7½ lbs. per H. P.) and drove two 4-foot propellers at a speed of 1000 revs. per minute.

Professor Chanute—with whom Mr. Herring was associated—followed the lines of Lilienthal's experiments, but, later, evolved a type of biplane glider of his own which closely approximates to the Wright machine of to-day. This glider had a supporting area of 168 square feet and weighed 36 lbs. The longest flight recorded was 168 feet.

During 1893 Sir Hiram Maxim built the remarkable steam flying machine which is still regarded by expert as one of the finest pieces of engineering work extant. Sir Hiram—who is, of course, well known to our readers as an inventor—exercised the same painstaking attention to detail in the manufacture of his aeroplane as he did in designing the Maxim quick-firer. Not only so, but, instead of trifling with models and gliders, he straightaway built a full sized machine which had a power plant of no less than 350 H. P. As one would naturally expect the Maxim aeroplane was characterised by an originality of design and construction so striking that it could only have emanated from the brain of a man capable of building such a clever piece of machinery as the famous automatic machine gun.

Sir Hiram's aeroplane was of a peculiar monoplane type—readily understood from the sketch herewith—with a framework built up entirely of steel tubes and wire stays. The total weight was 7000 lbs., the span of the planes

93 feet, and total lifting surface 4698 square feet. A power plant consisting of two compound condensing steam engines drove two screw propellers of nearly 18 feet diameter and 16 feet pitch at a speed of 350 revs. per minute. Firing for the water tube boiler was by gasoline burned in a large number of jets.

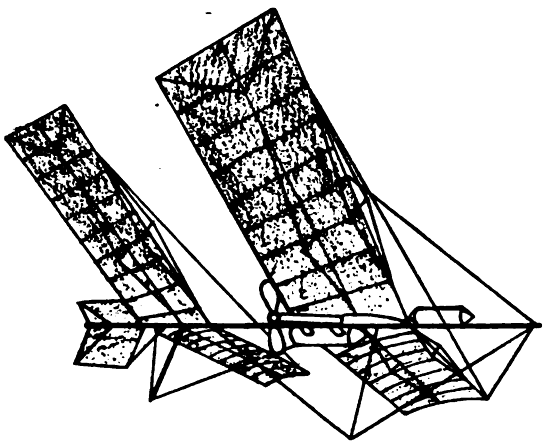
The tests with this mammoth were carried out at Maxim's home in Baldwyn's Park, Kent, but the machine was prevented from rising into the air by a system of guide rails placed some distance above the track on which it ran. At a speed of 40 miles per hour the lifting effect was found to be 3000 lbs. to 4000 lbs. On one occasion, when Sir Hiram and his assistant were on board, the lift was so great that the aeroplane broke clean through the guide rails and would certainly have ascended if Sir Hiram had not instantly shut off steam.

for it was then that they built their now famous "White Flyer." "White Flyer" was larger than the 1903-04 machine by about 87 square feet sail area, but the same old 20 h. p. engine was used. Of the 49 performances of 1905 the best are:—

Sept.	26th	11	miles	in 18 m. 9 secs.
"	30th	12¼	"	in 19 m. 55 secs.
Oct.	3rd	15.25	"	in 25 m. 5 secs.
"	4th	20¾	"	in 33 m. 17 secs.
"	5th	24	"	in 24 m. 38 secs.

Between 1906 and July 1908—the date of their arrival in France—no work was carried on by the Wrights other than in perfecting minor details and negotiating with various governments.

The first actual flight (70 yards) in Europe was performed at Bagatelle by M. Santos Dumont on the 23rd October, 1906, on a huge box



LONGLEY'S 1893-96 MONOPLANE MODEL

Owing to the expiration of Sir Hiram's tenancy of Baldwyn's Park the experiments had to be concluded and were not resumed.

The results of Maxim's work are admirably set forth in his fascinating book, "Artificial and Natural Flight," which I can heartily recommend to those interested in aviation.

Between 1893 and 1900 there exists a gap during which practically no advancement was made. At the beginning of the present century, however, Messrs. Wilbur and Orville Wright (two bicycle makers of Dayton, U. S. A.), built a small man-carrying glider on the lines of the Chanute with which they made a number of flights in the neighborhood of Kitty Hawk, North Carolina. A number of gliders of different sizes were built by the brothers during the years, 1900 and 1902, and in 1903 they had so far progressed as to build a full-sized aeroplane equipped with a motor of 12 H. P.

It is interesting to note the difference in dimensions of the glider of 1900 and its power-driven successor of 1903. These are as follows:

	Sail area	Length	Span	Rudder	Weight.
1900 Glider.....	312 sq. ft.	4′ 9″	35′	14 sq. ft.	117 lbs.
1903 Aeroplane	538 sq. ft.	6′ 6″	41′	14 sq. ft.	715 lbs.

Four flights were made with the 1903 machine, the best of these being .48 mile in 59 seconds (approx. 30 m. p. h.) at a height of 7 feet.

In 1904 a new engine of 20 h. p. was fitted, and the extra power gained, combined with the additional skill acquired by practice in handling the machine, caused the brothers to make no less than 105 flights during the year. On one occasion Wilbur Wright succeeded in flying for 3 miles in 5 m. 17 secs. at an average elevation of 10 feet.

The year 1905 marks the most commercially successful epoch in the progress of the Wrights,

kite of 39 feet span fitted with a 50 h. p. engine. This was followed by Mr. Henry Farman who—on the 13th January 1908—won the "Deutsch-Archdeacon" prize for a kilometer circular flight which was accomplished in 1 m. 28 secs. By July the 6th he had beaten his own record by flying for 19 minutes at Issy-les-Moulineaux. Blériot's first success was, curiously enough, made on the same day, although he had by this time built and tried no less than seven machines of different types. On the occasion in question he flew for 8 m. 24 secs. on his No. 8 monoplane.

By now French activity was thoroughly aroused and many budding aviators entered the field, most prominent of these being Robert Esnault Pelterie, De Pischoff, Leon Delagrange, Demanest, Cornu, and Gastambide-Mengin (the designers of the Antoinette).

Wilbur Wright arrived in France in July 1908 and made his first flight at Le Mans on August 8th, but only remained in the air for 1 m. 45 secs. In this short time, however, Wright handled his machine with such unusual dexterity that the general opinion was that (as one of the technical journals expressed it) "either the Wrights were in possession of a very extraordinary machine or else they had gained an unusually complete mastery over the technique of free flight. Continuing his performances Wilbur Wright gradually ran up his record until—on the 31st of December of the same year—he won the "Michelin" trophy by remaining in the air for 2 hours 20 minutes 23¼ seconds, in which time he covered 93 miles.

Such briefly is the history of the sequence of events that have led up to the present stage of development of the great aviation movement. The next article of this series I propose to devote to a simple treatment of the working of the aeroplane and, later, I hope to give detailed descriptions and drawings of the leading types.

(To be continued.)

THE ANTAMOK VALLEY MINING CO.

The prospectus of the Antamok Valley Mining Company of Benguet was issued last month. This company is capitalized at ₱500,000, shares ₱1.00 each, of which ₱300,000 were issued and ₱200,000 disposed of since the publication of the prospectus. The president of the company is Dr. J. R. McDill, who is interested in several mining companies operating in Benguet, and Dr. Ariston Bautista, President of the Germinal Cigar Factory, is Vice-President. Mr. H. T. Fox, of Smith, Bell & Company, Ltd., is Secretary-Treasurer, and Messrs. Smith, Bell & Co., Ltd., Manila, are General Agents. This company controls twenty-one mining claims in the Antamok Valley, the most of which have been to a large extent developed and show ore of a high grade present in paying quantities. It is proposed to install a mill of twenty stamps, cyanide outfit, and otherwise develop the property at an outlay of ₱200,000. For this purpose 200,000 pesos worth of stock was offered at par, and we are informed that the entire amount has been taken up. The following excerpts from the prospectus give a comprehensive idea of the extent and character of the property at its present stage of development:

"The Antamok Valley Mining Company was formed for the purpose of developing twenty-one gold claims of over four hundred acres in area. The claims lie partly on the southeast slope of the Antamok River Valley, and partly on the south slope of the Gold Creek Valley, near Baguio, in the Sub-Province of Benguet, P. I., which, with about twenty additional claims recently acquired, are now owned or controlled by the Company.

"They lie near to the well-known properties of the Bua Mining Co., Ltd., and the Benguet Consolidated Mining Co., Inc., both of which companies have six stamp prospecting mills and cyanide plants in successful operation, with ore in reserve for many years milling on a larger scale. The Antamok Valley Mining Company's claims are therefore in a proven district. Other properties near by—The Madison Gold Mining Co., Camote-Clayton Mining Co., the Headwaters, Muyot, the Kelly Mines and other groups—have all proved the mineral wealth of the Baguio district, and in many instances have got well beyond the prospect stage and are ready to extract values.

"The reefs are regular, in place, large in size, and offer the great tonnage and good values so desirable for gold production on a large scale.

"*Description of the Antamok Valley Mining Company's Property.*—The holdings consist of twenty-one mineral claims in two adjacent groups, which will be operated separately.

"*Names of the Claims.*—Van Buren, Harrison, Tyler, Cleveland, Wheeler, Bob Evans, Jackson, Monroe, Arthur, Lee, Broken Axe, Taylor, Last Dollar, Meisic, Fillmore, Pierce, Buchanan, Grant, Hayes, Eastman, Egbert.

"This number can be doubled by option at a low figure. The groups are named the Antamok Group and the Gold Creek Group, after the slopes of the rivers on which they are located; see accompanying map of the district. The mineral area of about four hundred acres now held by the Antamok Valley Mining Company is the last ground of the Antamok region proper, and is the apex of the main lodes of the district, as it catches most of the big Bua leads, the main Madison leads and also the Camote strike.

"*Superintendent's Report of October 31, 1909.*—No. 1. Main tunnel (see map) starts near the centre of the east side line of the Grant and runs N. 31° W. a distance of 170 feet. This is intended to be the main working tunnel, and will require 600 feet to reach the large calcite lead on the Hayes, on which reef we have our best ore at present. In that distance several other leads will be cut at depths of from 200 to 400 feet, all of which show some values at surface. The tunnel is 4½ feet by 7 feet inside of timbers, well timbered, and is tracked with 4×6″ sawed ties and 14-lb. steel rails. In the face of the tunnel a good lead of free gold quartz is showing, of which no test has been made.

"No. 2 is a crosscut tunnel on east side of creek above main tunnel driven N. E. for the

purpose of cutting leads on that side. Two leads were cut at 25 and 60 feet. The tunnel was continued a distance of 96 feet, and is timbered and lagged its entire length.

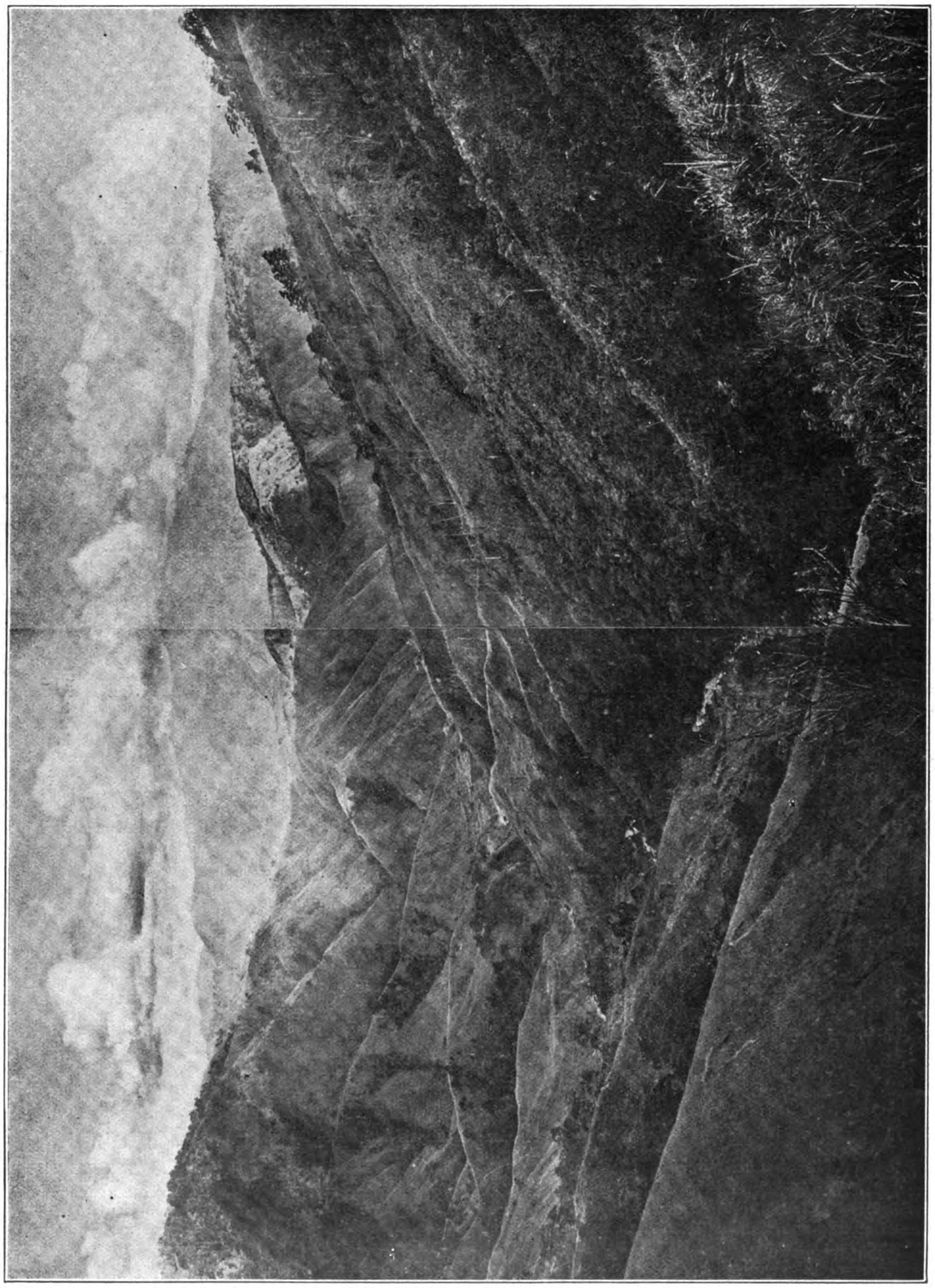
"No. 3 tunnel is the drift on the lead on west side of creek, a total of 159 feet. It includes two crosscuts at points where the lead was cut. At the present terminus the lead is 12 feet wide, the hanging wall is soft, quite heavy in sulphides, but shows no free gold. The centre is a hard quartz about 4 feet wide. On the foot wall there is 2½ feet of lead matter that pans from $4 to $6 free gold. The tunnel is in good condition.

"No. 4 is a tunnel on a big lead on the corner of the Buchanan and Egbert claims, on which work has just been started. Course S. W. and N. E.

"No. 5 is a tunnel crosscutting the Hayes lead, and from this point ore assaying $19.84 was taken, but the tunnel opened into old native workings.

"No. 6. A crosscut 50 feet below No. 5 showing 12 feet of lead matter, much softer ground, old Igorote (hillmen) workings still in evidence, assay of $26.87 taken here.

"No. 7. 50 feet below No. 6 lead, somewhat faulted, but in hard ground. Assays taken show values of $9.90 and $11.37. Tunnel carried 90 feet. At 50 feet the lead split, one vein of two feet taking a northwest course, the other of four feet turning almost due west. Tunnel continued to 90 feet on northwest lead, where three feet of good ore was found, and here a crosscut was driven at a right angle for 22 feet, where lead matter began to show



VIEW OF THE ANTAMOK VALLEY
(Taken from Station Eveland)
Foreground on the right covered by a part of the "Antamok Group" of the Antamok Valley Mining Company's Claims

The breast of this tunnel is now almost directly under point No. 5.

"No. 8. Lead is opened 90 feet below point 7 in an open cut exposing 4 feet of ore that pans. This lead is uncovered by slides in several places.

"Between No. 7 and No. 8 there is a distance of 1,000 feet, all of which pans well; between No. 5 and No. 7 there is a big block of milling pay ore. Exact tonnage cannot be estimated until upper and lower levels are connected.

"No. 9. A 30-foot tunnel on Polk near west line has been driven here, and the lead shows values of $12.42. A strong lead of calcite and manganese is exposed by a slide at this point for 250 feet, all of which shows strong free gold values.

and option to an American syndicate, which undertakes, if their engineer approves, to develop the property and have a 20-stamp mill in operation by the end of 1911.

"On this group, the surface indications everywhere are most excellent, and are as good as, or better than, any of the other properties of this district, several of which have shown commercial value by the expenditure of small amounts of money.

"There are many leads or veins; the principal one is a large calcite reef which has been traced from the north to the south end of the group, a distance of about seven thousand feet. It is on this group, Mr. Shea says, that about 1,000 feet of backs can be procured with 1,000 feet of tunnel.

crosscut tunnels to be driven from points at or near the levels of the different stream beds, and at right angles to dip of reefs or leads.

"The Gold Creek Group carries a number of parallel leads, which have been opened up at intervals; the outcrop of these leads has been traced for several thousand feet, and open cuts have been made to prove that the ledges were in place and continuous, and not mere 'blowouts' of quartz.

"Samples were taken from each of the openings and panned roughly, free gold being found in each instance. The distance from the first or most northern to the third lead is about 400 ft., the second lead being about 150 ft. from the No. 1 lead. The openings on Nos. 1 and 3 make the width of ledge between walls appear

TYPICAL TIMBER STAND ON BAGUIO PLATEAU

about 7 ft., No. 2 being much smaller. An average sample from No. 3 lead, taken across a width of eight feet of lead matter, showed free gold values of $6.00 per ton; with 1 or 2 per cent of sulphurets, the value of which was not determined.

"These three reefs may be cut by the same crosscut tunnel by means of which backs of from 200 to 400 ft. may be obtained.

"Much of the Company's property is covered with pine forest, and timber of good quality is plentiful and convenient, and a crosscut tunnel 600 ft. in length will cut the three main leads. The 'strike' of the leads is almost due east and west, and the 'dip' is south.

"On the Antamok Valley Group a large calcite lead, showing traces of manganese, crosses the claims. The strike of this lead is nearly north and south, and it has been traced on the outcrop for several thousand feet. This vein also dips with the slope of the ground, and, roughly speaking, 1000 feet of crosscut *would give* 1000 feet of backs. It is quite possible that in some of the deep ravines which cross the strike of this ledge, a place could be found where a drift could be driven on the ledge and several hundred feet of backs obtained.

"Timber is plentiful on this group and of good quality for mine as well as for sawed lumber for erection of plant when required. Water power is obtainable from either the Antamok or the Itogon rivers.

"*Gold Creek Group.*—Timber is abundant for mining and for construction work of all kinds. Where the Fillmore and Pierce claims cross the Itogan river, there is an excellent mill site on either claim which will be approximately 2500 feet from the main tunnel on the Grant. During the last dry season our Superintendent measured the water, and according to Mr. Shea's estimate it indicated a horse power of 39. With 3000 feet of flume, all on the company's ground, a point would be reached for an intake where there would be no wash to contend with, which will give head of 150 feet and still leave the mill high and safe above the river. This power will operate 20 stamps, and more is available.

"A surface tram is feasible from the Grant tunnel or an aerial tram from the Hayes or from the other claims as conditions may determine. The distance from the Hayes where the ore bodies are opened up will require a surface tram line of about 3400 feet.

"*Houses and Tools.*—The Company has a full supply of tools, a storehouse, and workmen's and Manager's houses on this group, 452 feet of steel track laid in main working tunnel, and in stock 3,000 board feet of sawn lumber ready for use.

"*The Antamok Group.*—The Antamok Group has eleven full claims or about 250 acres. They lie about the Madison Gold Mining Company's claims, which were recently sold under lease

"Timber is plentiful, and the water here will develop power for an 80-stamp mill.

"If the lower four claims alone develop up to their surface indications, it will be as good a mining proposition as could be desired.

"There is a splendid mill site on the southeast corner of the Arthur claim, high above any possible danger from floods. It is at this point that there is an indicated horse power at low water of 66, and by fluming to a head of 100 feet, which can be done, power will be developed for 80 stamps.

"It is intended to push development work on this group as rapidly as possible.

"The 1000-foot tunnel required to crosscut the big calcite lead at depth of 1000 feet can be driven in twelve months by working three shifts of miners.

"This main lead can be drifted on at the same time at a higher level by picking it up where it crosses some of the deep gulleys.

"Last year the Directors declined a year's option of ₱10,000 each for the eleven claims of this group.

"*Extracts from Mr. C. Shea's Expert Report Made January, 1909.*—The claims are easily accessible from Baguio by the Baguio-Itogon road and by the new road through the Kelly claims. The slope of the ground in both valleys is very steep, and the "reefs or leads" dip in the same direction as the ground slopes, making an ideal prospecting proposition, by means of

"Taken as a whole the group presents a proposition susceptible of extensive development at comparative small cost.—C. SHEA,—*Manager Bua Mining Co., Ltd.*

"*Water, Power and Drainage.*—All the drainage from the eastern half of the Baguio district feeds into the Itogon river. The Antamok river drains the smaller valley east of the Pakdal-Itogon ridge and possesses no tributaries of any magnitude. At its headwaters east of Pakdal there is a large basin of auxiliary drainage. A short distance below Antamok, the Antamok river joins the Itogon, of which it is a lateral tributary. The Itogon drains the area from the Pakdal-Itogon ridge to the Kias ridge, through several good-sized streams, like Gold Creek, the Butuan Creek and many smaller streams. Gold Creek has the larger territory, heading in the east and south slopes of the Baguio Plateau and reaching Kias Ridge with its eastern branches. Its volume normally is greater than that of the Antamok, and throughout its area the lateral branches have kept pace with the erosion of the main channel, cutting a well-defined basin between the Kias and Pakdal-Itogon Ridges.

"The Butuan heads in the Kias Ridge and again resembles the Antamok in its clean cut valley with little lateral extension.

"The measured power on the Antamok Valley Mining Company's properties will energize the wheels for 100 head of stamps. The water rights to all this power have been secured for the Company.

"The question of power for the entire Baguio mining region when developed on a large scale will be solved by harnessing the immense energy of the Agno river. At a point but seven miles to the east 20,000 horse power is considered a fair estimate. The water of the Agno has also been officially measured at its mouth, 50 miles away, during the past two years, and although no exact profile has yet been made of the river's bed, the most competent men in the Philippines to judge this class of power are of the opinion that the possibilities at the Agno's mouth will be from 60,000 to 80,000 horse power—enough to furnish power, light and heat to half of the island of Luzon.

"*Organization.*—The organizers of this Company are men who have been concerned in prospecting, developing and managing gold properties in the Philippines since American occupation. Messrs. Beyer and Colgan, discoverers of the ground, received their early training in the western mining camps of the United States. The Company has made an arrangement with Messrs. Smith, Bell & Co., of Manila, whereby this firm become their General Agents, thus insuring continuity of management, a most important matter especially in the Philippines. This will, moreover, in the opinion of the directors, guarantee careful and economical administration.

"There are no preference shares of any sort in the Antamok Valley Mining Company and each share is fully paid up and non-assessable. The promoters have agreed with the holders of the ground that they will receive for the twenty-one claims one-half of the capital of the company. Fifty thousand pesos in script has been issued to the pioneers, who have placed the speculative capital necessary to show the values and large tonnage that is possible. The remaining ₱200,000 is issued to further develop, equip and take out bullion during the coming year on the Gold Creek Group and at the same time to open up the Antamok side. The present capitalization is the actual value of ore now in sight.

"More money carefully expended in development should increase the value of milling ore to such an extent that the property will be worth five or ten times its present capitalization.

"*Plan of Development.*—The area of ground, the numerous leads, their size and value on surface and in depth, the fact that they are in place and improve in value with depth as have all ore bodies in the district, decides the Company to determine upon a policy of an initial installment of not less than 20 stamps and equivalent cyanide and other processes needed on each group. Determined development for four or five months more, we are sure, will justify this policy; indeed, the tonnage already seems to warrant ordering a 20-stamp mill, the erection of which would take about nine months.

"The company is negotiating for a first class millwright and millman to install and manage the first plant.

"*Values.*—Assays made by the Philippine Government Assay Plant as the work has progressed give the following values in U. S. Currency per ton of ore:—

April 22, 1909	$10.40
June 10, 1909	20.67
July 12, 1909	10.34
Aug. 26, 1909	19.84
Aug. 26, 1909	22.87

"The last two assays were taken from the Hayes 6-foot lead from the face of the tunnel.

"On August 28, 1909, our Superintendent reported that a strike had been made on the Hayes, panning high in free gold. Assays of these samples made by Government Assay show values of $9.09 and $11.36 U. S. Currency. Previous assays taken from the property are as follows:

Size Feet	Strike	Oz. Gold per ton	Value U. S. Cy.	Oz. Silver per ton	Name of claim
4	N. W. & E. S.	0.24	$ 4.96	0.38	Tyler
8½	N. W. & S. E	0.66	$13 64	0.70	Harrison
7	S. W. & N. E.	0.54	$11.16	0.26	Van Buren
5	S. W. & N. E,	1.04	$21 50	0.62	Cleveland
36		0.52	$10.75	0.34	Lee
6	N. E. & S. W.	0.96	$19.84	1.30	Taylor
30	N. W & S. E.	1 60	$33.07	1.20	Meisic
4	S E. & N W.	0.20	$ 4 13	0.24	Polk
5½	S. W. & N. E.	0.96	$19.84	0.96	Hayes

The foregoing assays are from but nine of the numerous leads in both groups.

THE SHANGHAI TRAMWAYS

The operation of the Shanghai Tramways up to September 30th, 1909, has resulted in a deficit which amounts in all to $196,946.03. The line was formally opened to traffic on March 5th, 1908, under an agreement by which the municipality was to supply the necessary power at fixed rates and the company to pay the municipality a royalty of five per cent of the gross receipts. The company made a request on the Municipal Council for a reduction of rates charged for power and for the privilege of substituting shares in lieu of payment of the royalty. The Council considered the proposals favorably offering to reduce the rate at which the power is furnished and to abolish the royalty until the company is in a position to pay a dividend. The attitude of the Council appears to indicate a desire to assist this enterprise in every way consistent with the best interests of the ratepayers. A recent number of the *Shanghai Municipal Gazette* is devoted to a review of this subject and contains much of interest relative to the operation of the company. We quote a few excerpts from a memorandum reviewing the financial position of the tramways contained therein.

"The following statement shows the revenue and expenditure of the Tramways Undertaking from the opening on March 5, 1908, to September 30, 1909:—

	March 5, 1908, to January 31 1909 (Original Fares)	February to September 30, 1909 (Revised Fares)	Total.
RECEIPTS.			
Cash Fares	310,223 80	340,861 82	651,085.62
Less loss on subsidiary coinage	58,321 94	74,497.64	133 819 58
Net	251 901.86	265,864.18	517,766.04
Coupons	36,065 55	12 636 19	48,702.74
Season Tickets	12,829 00	36 271 00	49,100 00
Sundry	9.673.93	8,457 74	18,131 67
Total Receipts	310,471.34	293,229 [illegible]	633,706 45
EXPENSES.			
Traffic	93,566 06	65,726 97	159,293 03
General	61,843 [illegible]	49,[illegible]17 60	111,061.[illegible]
Repairs	54,081 90	57,366 28	111,448.18
Power	99,979 40	81,383 83	181,363 23
Royalty.	16,539 87	14,238.53	30,778 40
Shanghai Expenses	326,011.17	267,933.31	593,914 48
London expenses including interest on Loan (up to £26 000) at 4% per annum...	36,466.54	26,521.12	62,987.66
Provision for renewals at 3% per annum on £320,000....	100, 71.46	73,142 88	173 714 84
Total	463,049 17	367,597 31	830,616 48
Deficit	122,577 83	74,368.20	196.916 03
Car Miles run	1,708,770	1,312,202	3,020,972

"The authorized and subscribed Capital of the Company is £320,000.

"The expenditure incurred on Capital Account has been approximately £346,000; and the sum of £26,000 has had to be borrowed at 4 per cent interest, partly to enable the Company to pay its current obligations in connexion with the operating of the Tramways.

"From the foregoing statement of revenue and expenditure it will be seen that the Company has lost up to September 30, 1909, nearly $200,000 in operating the Tramway Service. Whilst the system has been kept in efficient repair, the running expenses (excluding power and royalty) have been extremely low, equalling only 2.65d. for each mile run as compared with about 5.00d. for most Home systems. The charge per unit for current, however, has averaged 1.323d. in Shanghai as compared with 1.137d. for a number of Home systems taking about the same quantity.

"Whilst the number of passengers carried has more than equalled the average for single deck cars in most other parts of the world, the revenue has not nearly approached the standard of other places or that originally expected by all concerned. It has averaged only 4.28d. for each mile run as compared with about 10d. on most Home systems. There are two reasons for the comparatively low earnings in Shanghai:

(1) The extremely low fares necessitated by the unprecedentedly large service of very cheap ricshas.

(2) The loss by exchange of subsidiary coinage which has amounted to no less than $133,319 up to September 30, 1909.

"The first circumstance was not, apparently, taken into account when the concession was granted, and the second could not have been anticipated as, prior to that time, copper coins had circulated at a premium. The $133,319.58 loss represents average rates of 128.80 and 113.1 per dollar for copper and small silver respectively; the rates when the Tramways started were 114.66 and 111, but the depreciation has now increased to 135.1 and 114.2 respectively per dollar. Everything that the Company could do to overcome loss by exchange has been by means of Season Tickets and Coupons, but it is impossible for an undertaking such as Tramways to counteract more than a very small proportion of these subsidiary coinage losses from which now the whole native population of China is suffering.

"In addition to the amount of $184,266.31 paid to the Municipal Council for power, the expenditure to September 30 includes royalty to the Council amounting to $30,778 and also about $14,500 for road maintenance (macadam) entirely for the benefit of other vehicular traffic. (The total payments to the Council have amounted to $229,554.31.)

"The Council has assisted the Company by acceding to its requests for revision of sections and fares; and, but for these modifications (partly increases and partly reductions) and also the introduction of Season Tickets, the loss to September 30, 1909, would have been considerably greater. It is recognized, however, that prevailing conditions are not such that fares higher than those at present in force could be introduced with advantage. The question, therefore, comes to be: in order to enable the Company to carry on this public utility with as little loss as possible, will the Ratepayers

authorize the Council to grant relief to the Company as follows?

(1) Reduction of charge for power from the present rates of 4.8, 4.6, and 4.4 (averaging 4.55) tael cents per unit to a flat rate of 3.75 tael cents per unit.

(2) Entire relief from maintenance of road paving.

(3) Abolition of royalty of 5 per cent on receipts.

With respect to No. (1), had the 3.75 rate been applied from the beginning the amount paid by the Company would have been $35,170 less. Had the accounts for current been paid for in the coinage collected on the cars they would have been further reduced by $37,774. These amounts added to the royalty of $30,778 and the cost of maintenance of macadam, viz., $14,500, would have reduced the total loss from $196,946 to $78,724. The Company is confident that the Ratepayers will recognize the difficulty of the position and sanction the granting of the relief asked for. Whilst the Company makes this application for special treatment at the hands of the Ratepayers on grounds of financial necessity and of the unique difficulties affecting Tramway operation in Shanghai, the following points are set forth for general information as showing that, apart from these considerations, there are good grounds for the abatements asked for:—

(1) *Power.*—The rates charged at present will be found in the extract from the Power Agreement. The following, briefly, are the reasons which it is thought justify the proposed reduction to a flat rate of 3.75 tael cents per unit:—

(i) The quantity originally estimated, viz., 1,250,000 units per annum as per Schedule B of Power Agreement has all along been greatly exceeded, the figures for the actual amount taken being—

1908.	Total units.	Equal to units per annum.
June to December	1,146,434	1,965,315
1909.		
January	192,632	2,311,584
February	184,237	2,210,844
March	201,610	2,419,320
April	170,737	2,048,844
May	161,025	1,932,300
June	148,938	1,787,256
July	146,053	1,752,636
August	145,503	1,746,036
September	149,107	1,789,284
Averages	165,392 per month	1,984,704 per annum

Mainly owing to the high rate for current, the Company has had to curtail its services within recent months in order to minimise losses. It is obvious that the amount of current taken is an important factor in determining the price per unit. This is borne out by the following tables:—

Table A.—Home systems taking approximately the same amount of current as the Shanghai Tramways.

	Units per annum.	Charge per unit.
Bury	2,639,874	.932d
Dundee	2,437,428	1.25
Stalybridge	2,311,875	1.00
Rochdale	2,064,318	1.12
Blackburn	2,023,577	1.40
Stockport	1,979,868	1.16
Aberdeen	1,955,858	1.10
Average		1.137

Table B.—Home systems taking approximately the amount of current mentioned in the scale of charges in the Shanghai Power Agreement.

	Units per anum.	Charge per unit.
Southampton	1,418,379	1.875d.
Wallasey	1,408,151	1.62
Blackpool	1,287,152	1.79
East Ham	1,301,957	1.50
Newport (Mon.)	1,269,431	1.35
Rotherham	1,263,752	1.50
Derby	1,262,471	1.50
South Shields	1,232,252	1.381
Average		1.564

"The average of the systems in Table A, in which Shanghai ranks, *according to consumption*, is 1.137d. per unit, and the average of the systems in Table B, which approximates to the smaller consumption contemplated in the Power Agreement is 1.564d. The former rate is 27.3 per cent less than the latter and this percentage of reduction on our present average rate of 4.55 tael cents per unit would give a rate of 3.31 tael cents, but the Company only asks a reduction to 3.75 tael cents.

(ii) That the cost of production by the Council as embodied in Schedule B of the Power Agreement (upon which the scale of charges was based) has been found to be overestimated in respect of the following:—

(*a*) Coal was taken in Schedule B at 5.4 lb. per unit generated. In the Electricity Department's published figures for January and February 1909 the coal used for all purposes is given as 4.97-lb. per unit generated. A traction load being so constant gives much greater economy, in coal (say 40 per cent) than an ordinary lighting, etc., load. This means that with an overall average of 5 to 5½-lb. per unit the coal for traction alone should be from 3½ to 4-lb.

(*b*) Schedule B includes interest at 7 per cent, and depreciation at 7½ per cent. The highest rate paid on the Electricity Department loans is 6 per cent and the rate adopted for depreciation of generation plant as per the published accounts is 7 per cent.

"At a Special Meeting of Ratepayers, held June 6, 1905, the Chairman of Council stated that the rates to be charged for current to the Tramways were calculated to produce a profit of 'fully Tls. 16,000 per annum.' This was based on 1,250,000 units per annum and on expenses as per Schedule B referred to. But the 1,250,000 units have been exceeded by no less than 60 per cent and the expenses in Schedule B overestimated as just explained. The *actual* profit must, therefore, be much greater than Tls. 16,000. Careful calculations, based on the Electricity Department's published results, indicate that on 2,000,000 units per annum for Tramways, the profit, after meeting all obligations, is about Tls. 36,000. On that quantity the proposed reduction to 3.75 tael cents per unit would amount to Tls. 16,000. The Electricity Department, therefore, would still be receiving greater profit from the Tramways than was at first expected—with prospects of increasing profits due to the additional service of trams which the 3.75 rate would ncourage.

(iii) To small consumers of electricity for power, heating and cooking, a reduction was made in January last from 5.75 to 4.75 tael cents per unit = 17.4 per cent for those taking over 130 units per month per horsepower or kilowatt installed. That is to say, a consumer with a motor of one horse-power taking anything above 130 units in the month is charged at 4.75 tael cents per unit: under the existing scale, the Tramway Company has to purchase over 4,615 times that quantity, viz., 600,000 units each year at 10 per cent higher rate, viz., 4.8 tael cents per unit. The proposed reduction of the Tramway rate from the average of 4.55 to 3.75 tael cents is equal to 17.5 per cent. (Were the accounts for current paid in the coinage collected on the cars the reduction would be over 25 per cent on the basis of present exchange losses.) For these reasons it is considered that the Company is fairly entitled to the proposed reduction to 3.75 tael cents; and the Company begs to suggest that (especially in view of the facts mentioned in paragraph II immediately preceding and the necessity of assisting the Company in connexion with its losses) this rate be made retrospective as the Ratepayers, in their discretion, may decide.

(2)—*Road Maintenance.*—In the days of animal traction the Tramway horses running on the tracks caused considerable wear to the surfaces, and there were good grounds, therefore, for holding the Tramway undertaking responsible for the maintenance of the Tramway portion of the roadway. The introduction of electric traction rendered it necessary to construct a much more expensive form of track to stand the greater weight of the electric cars and the tractive effort of the wheels. But, with the abolition of horses, the operation of Tramways ceased to cause wear to the road surfaces, and it is now being recognized that there is an absence of equity in the arrangement under which the Tramway undertaking is called upon to pay for the wear caused by other traffic. The cost to the Tramway Company, so far, for maintenance of macadam has been about $14,500. Very little expenditure has been required for the wood paving, but the continuous running of iron-tyred ricshas over it has already worn the blocks into distinct grooves; and the deterioration of this paving is an item which would increase further the loss of the Tramway Company. It is considered that, if the Company maintains, as it does, the concrete foundation of the track, the rails and the granite setts alongside them, it might reasonably be relieved of the cost of maintaining the macadam and the wood surfaces of the track (Clause 16 of the Concession Agreement) which are provided for other traffic. Even then the community would have benefited by the Company having paid the capital cost of the wood paving, approximately $100,000.

(3)—*Royalty.*—The Municipal Council, in seeking to safeguard the interest of the Ratepayers, as it did so ably in arranging the details of the Tramway Concession in 1905, no doubt considered that the terms imposed were such as could be fulfilled without difficulty. No one, however, could say positively what the difficulties of Tramway operation would be, but it is now clear that the benefits of an ample and developing Tramway service, so necessary to the commercial and industrial growth of a city like Shanghai, cannot be obtained without permanent amelioration of the terms of the Concession.

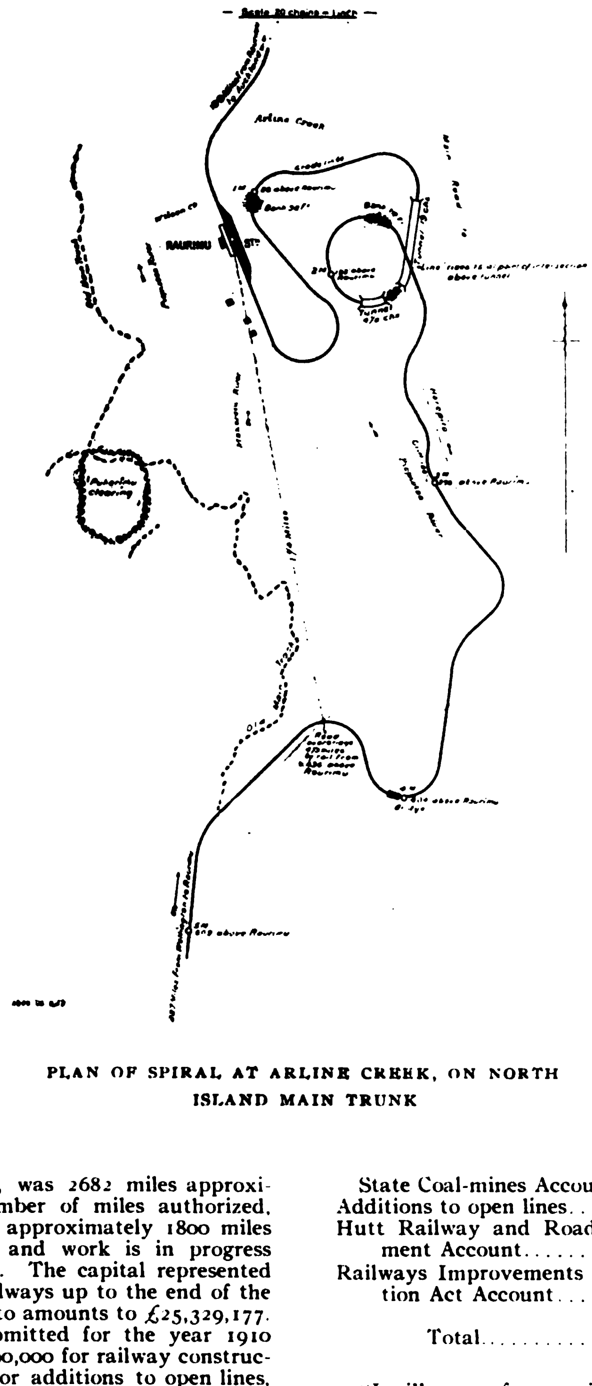
The amount paid to the Council in respect of royalty on receipts up to September 30, 1909, has been $30,778.40. Royalty, whilst based on receipts, is generally presumed to be payable out of profits, but in the case of the Shanghai system it has had to be paid out of capital. There are other neighbouring places, however, where, although a reasonable margin does exist, a 5 per cent royalty on gross receipts is not payable. Reference to the accounts of the Hongkong Tramways shows that nothing at all is paid for royalty, whilst in Singapore the royalty for the year 1907 only amounted to about $3,000, being 5 per cent on the *net* receipts after providing for London expenses, and depreciation. (In Hongkong mainly owing to the traffic conditions, a satisfactory revenue is earned for every mile run which is also the case in Singapore, partly for the foregoing reason and partly because of there being only a trifling loss by exchange. Both these systems, however, are handicapped by a very large capital, Hongkong being about £38,000 per mile of single track and Singapore about £29,000, as compared with about £13,500 for the Shanghai system).

The Company, therefore, petitions the Ratepayers for relief under this third head and suggests the cancellation of the royalty.

The following is the statement of passengers:

	March 5, 1908, to January 31, 1909 (Original Fares.)	February 1 to September 30, 1909 (Revised Fares.)	Total.
First Class.			
Cash Fares and Coupons	991,410	871,739	1,863,149
Season Tickets (estimated)	265,054	756,203	1,021,257
Total	1,256,464	1,627,942	2,884,406
Second Class.			
Cash Fares and Coupons	7,572,743	5,619,258	13,222,001
Season Tickets (estimated)		7,092	7,092
Total	7,572,743	5,626,350	13,229,093
Grand Total	8,829,207	7,284,292	16,113,499

NEW ZEALAND RAILWAYS



PLAN OF SPIRAL AT ARLINE CREEK, ON NORTH ISLAND MAIN TRUNK

The Public Works Statement, issued by the Minister of Public Works of New Zealand and covering the year ended March 31st, 1909, indicates unusual activity in this department. During the year the expenditure for all works amounted to £2,169,278 net, of which £1,349,110 were spent in the construction and maintenance of railways. The total length of line opened during the year was approximately 126 miles. The total mileage open in New Zealand at the end of March, 1909, was 2682 miles approximately and the number of miles authorized, 4622. Of the latter approximately 1800 miles have been surveyed and work is in progress along many sections. The capital represented by investment in railways up to the end of the fiscal year referred to amounts to £25,329,177.

The estimates submitted for the year 1910 include a vote of £790,000 for railway construction and £350,000 for additions to open lines, making a total of £1,140,000. Of this amount £250,000 will be spent for rolling stock and additional workshop machinery.

In his report for the year, the Honorable Roderick McKenzie, Minister of Public Works, makes the following reference to the development of railways during the year:

"As I have already mentioned, the length of new railway opened for traffic during the year was greater than during any similar period for thirty years past. This was principally due to the completion of the North Island Main Trunk Railway, which was handed over to the Railway Department for regular working on 15th February last.

"The total expenditure on railway-works last year amounted to £1,349,110, which was £69,301 in excess of the previous year's total. The particulars are as under:—

Construction of new lines—	£
Public Works Fund	713,121
Waikaka Branch Railway Account	13,391
State Coal-mines Account	24,984
Additions to open lines	389,672
Hutt Railway and Road Improvement Account	66,408
Railways Improvements Authorization Act Account	141,534
Total	£1,349,110

"I will now refer more in detail to the several railways that have been in hand, and the proposals of the Government in regard to each for the current year.

"*Kawakawa-Grahamtown.*—The work of closing up the gap between Kawakawa at the north and Hukerenui at the south end has been vigorously proceeded with throughout the year. The whole of the formation that is not already finished is well in hand and nearing completion. The laying of the rails at the south end has been extended to about a mile beyond Towai, and rail-laying has now been resumed at the **north end, and is steadily working southwards. A connection between the north and south ends of the line should be effected before next winter.**

"Some further work has also been done on the extension from Whangarei to Grahamtown, and a contract has been entered into for the construction of the deep-water wharf at the latter place. The date fixed for the completion of this contract is 25th February, 1911.

"The expenditure last year amounted to £32,616, and for the current year a vote of £40,000 is proposed. (Main line 58 miles; open 30 miles.)

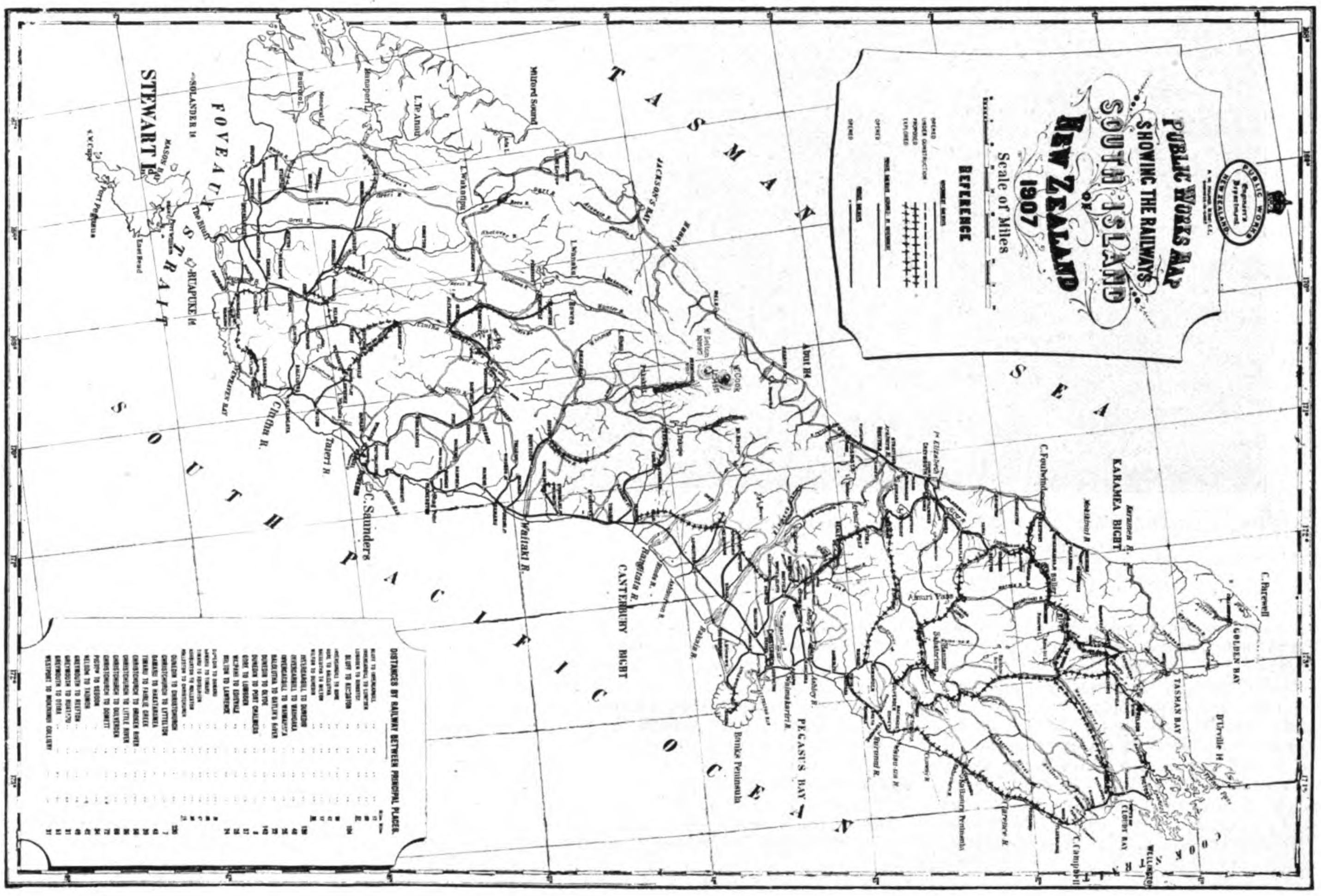
"*Kawakawa-Kaikohe.*—A short branch line has already been constructed from the Kawakawa-Grahamtown Railway at Scoria Flat to a good scoria deposit in the vicinity, which has been, and still is, used as a ballast-pit. Owing to a strong demand for an extension of the railway towards Hokianga, a flying survey has been undertaken from the end of this ballast-pit line to Kaikohe and Hokianga Harbour. A railway along this route, in addition to opening up much fertile country in the Hokianga district, would also afford a valuable connection between the Kawakawa-Grahamtown Railway and the North Auckland trunk line when the latter is extended as far as this. The immediate construction of the line between Scoria Flat and Kaikohe is fully justified, as not only would the railway itself be a profitable undertaking, but it would also cheapen and expedite the construction of the North Auckland Railway. It is therefore proposed to provide for the construction of this railway in the Railway Authorization Bill of the present session, and a vote of £2,500 to make a commencement with the work is provided on the estimates.

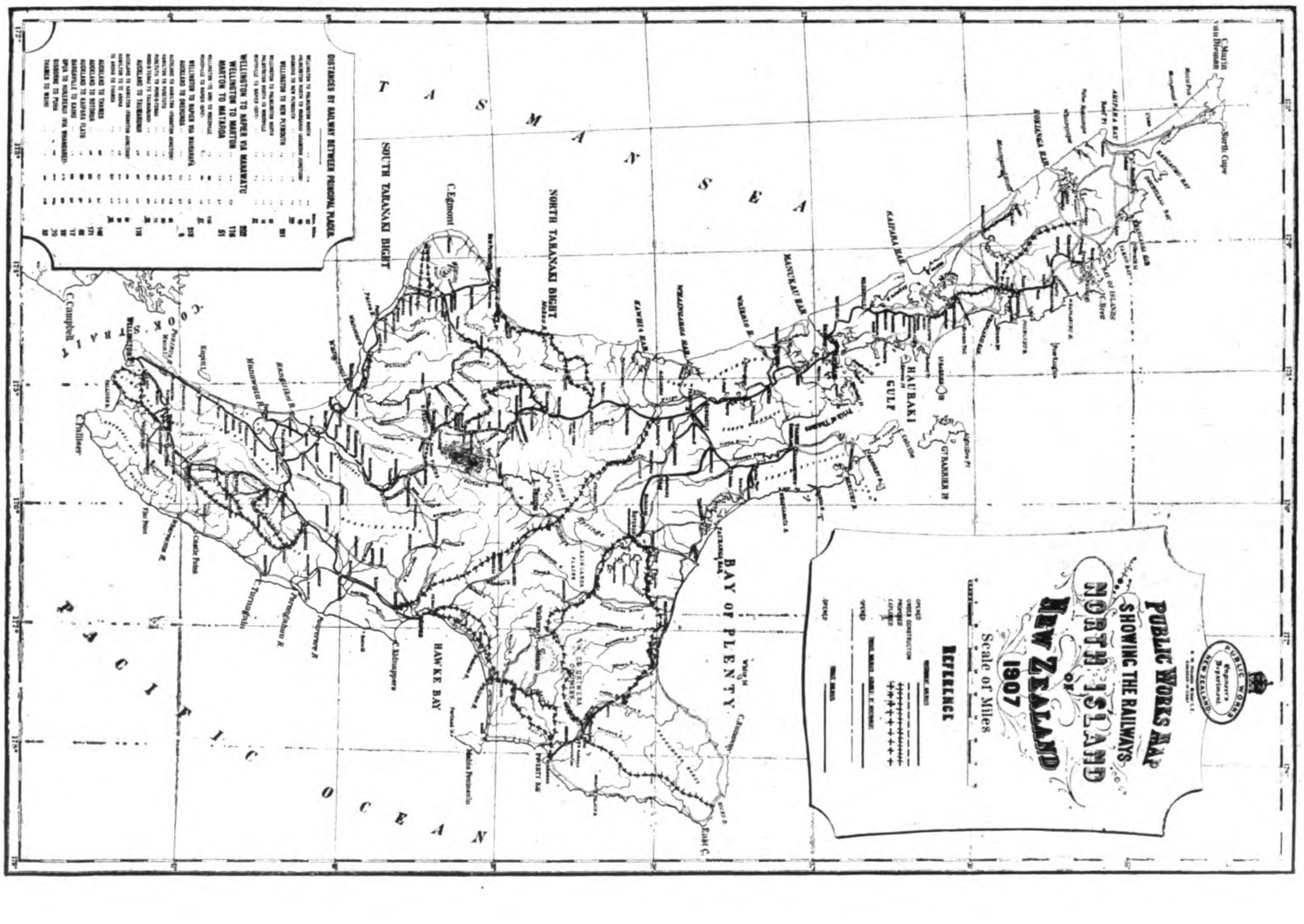
"*North Auckland.*—This railway has in previous years been referred to as the Helensville Northwards line. While that title was quite suitable when an extension of only a few miles northwards of Helensville was contemplated, it is scarcely the most appropriate designation to apply to the line, which is now intended to traverse the whole of the North Auckland Peninsula—hence the new title.

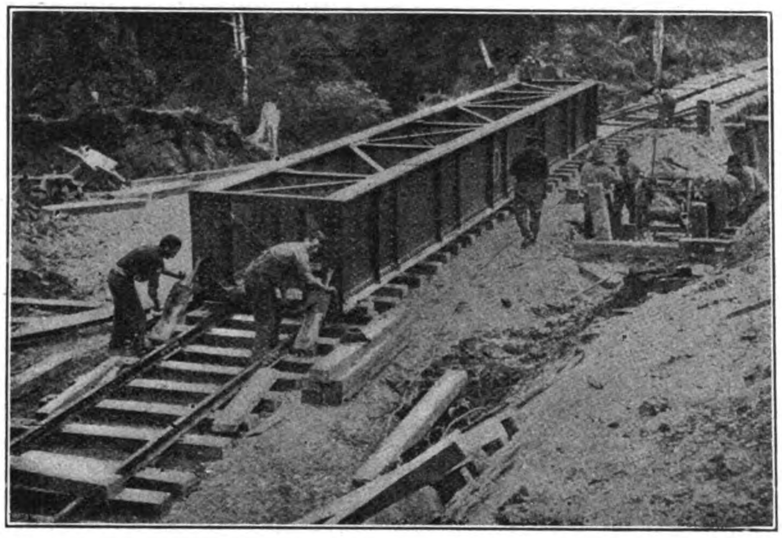
"A large number of petitions were presented to Parliament last session praying for a westerly deviation of the railway, and the Public Petitions Committee recommended that exhaustive surveys of the rival routes should be made. In pursuance of this recommendation further surveys have been undertaken, and in February last I made a personal examination of the ground, in company with the Engineer-in-Chief of the Department, the members for the three adjoining electorates, as well as the member for Manukau and one of the members for Auckland City, and a number of other gentlemen locally interested. As a result of my inspection, and after careful inquiries into the matter made locally, and after my return to Wellington, I came to the conclusion that the demand for a more westerly route was well grounded. The question was subsequently carefully considered in Cabinet, when it was decided that a more westerly route, as far as McCarroll's Gap, should be adopted. A detailed survey of a considerable portion of this route has since been completed; the balance is in hand, and construction-work on the deviation has already been commenced. It will now be possible to employ a larger number of men, so that better progress will be made in the future than has been the case during the last two or three months.

"The making of this deviation will render it necessary to obtain a re-authorization of the line from near Maungaturoto to McCarroll's, and provision for this will be made in the Railways Authorization Bill. As regards the extension of the line northwards from McCarroll's, it is proposed to appoint a Royal Commission to sit during the recess to take evidence as to the best route to be adopted, and the report of the Commission will be laid before Parliament next session.

"The section between Wayby and Wellsford, which was approaching completion when last


PUBLIC WORKS MAP
SHOWING THE RAILWAYS
SOUTH ISLAND
OF
NEW ZEALAND
1907
Scale of Miles
REFERENCE
TASMAN SEA
SOUTH PACIFIC OCEAN
CANTERBURY BIGHT
PEGASUS BAY
KARAMEA BIGHT
GOLDEN BAY
TASMAN BAY
FOVEAUX STRAIT
STEWART I.
DISTANCES BY RAILWAY BETWEEN PRINCIPAL PLACES


PUBLIC WORKS MAP
SHOWING THE RAILWAYS
NORTH ISLAND
OF
NEW ZEALAND
1907
Scale of Miles
REFERENCE
TASMAN SEA
PACIFIC OCEAN
BAY OF PLENTY
HAWKE BAY
NORTH TARANAKI BIGHT
SOUTH TARANAKI BIGHT
HAURAKI GULF
COOK STRAIT
DISTANCES BY RAILWAY BETWEEN PRINCIPAL PLACES



NORTH ISLAND MAIN TRUNK RAILWAY.—BRIDGE OVER PIOPIOTEA RIVER. LAUNCHING A 44 FEET PLATE GIRDER SPAN

year's Statement was delivered, has since been finished, and was handed over to the Railway Department on the 1st April last. The line between Wellsford and Kaiwaka is well forward, the rails having already been laid and goods traffic undertaken as far as Te Hana, and the formation to Kaiwaka is in an advanced condition. Good progress has also been made with the extension of the survey northwards.

"The expenditure on this railway last year amounted to £50,983, which was nearly double that of the previous year. For the current struction-works as soon as possible after the termination of the session.

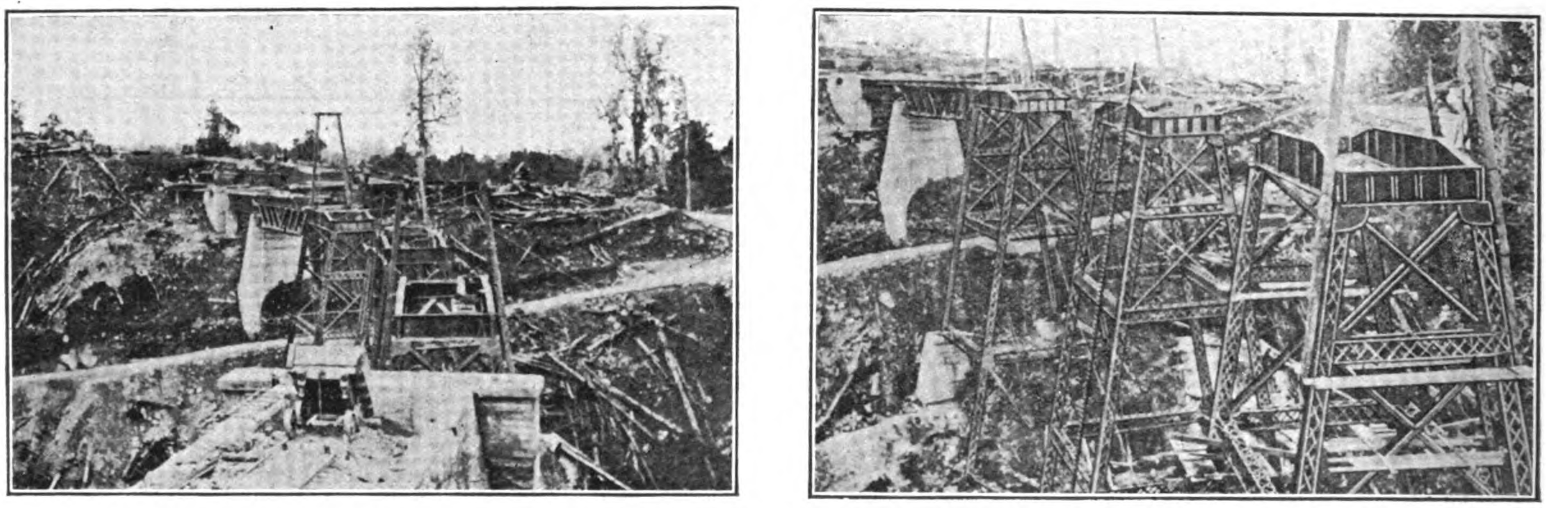
"At the Gisborne end of this line the bridge over the Waikohu River was completed, and the line extended from the temporary stopping-place on the south side of the river to the permanent station on the north side on 1st April last. A very large amount of formation-work has been done beyond Waikohu, which is the heaviest section of the line between Gisborne and Motu, and includes the Waihuka tunnel. The rails have also been laid for three or four whole section will probably be completed in eight or nine months. Work on the Whangamomona section has also been commenced. This railway now taps the main arterial road of the district, and will consequently be of very great benefit to the settlers.

"The expenditure last year amounted to no less than £43,071, which is the largest amount spent on the line in any year since the work was started. A much larger expenditure is anticipated during the present year, however, and a vote of £60,000 is proposed for the work.

"*Mount Egmont Branch.*—Mention was made in last year's Statement of the first section of this railway, including the crushing-station at Manganui, having been completed and handed over to the Railway Department. It was also stated that it was proposed to extend the railway to the site of a permanent quarry on the slopes of Mount Egmont, at the head of the Waingongoro River. Further exploration and survey has, however, shown that this quarry would probably not turn out so satisfactorily as one to be obtained at the head of the Manganui River, although to approach the latter an incline-tramway will be needed. The necessary surveys are in hand, and as soon as they are completed the work of construction will be proceeded with, as the stone-crushing plant cannot be worked to the best advantage until a permanent supply of solid stone has been opened up.

"Only a comparatively small expenditure was incurred last year—viz., £2,738. A vote of £5,000 is provided for the current year.

"*North Island Main Trunk.*—When my predecessor delivered his Statement last year, a train had been run between Wellington and Auckland and back—namely, on the occasion of the visit of the American Fleet. This was quite a 'special' train, however, and special arrangements had to be made in order to get



TAONUI VIADUCT ON THE NORTH ISLAND MAIN TRUNK RAILWAY. THIS VIADUCT IS BUILT ON A 10-CHAIN CURVE; GRADE 1 IN 66; ONE 36 FT. SPAN, FOUR 64 FT. SPANS AND THREE PIER-HEAD SPANS OF 36 FEET ON STEEL PIERS; 112 FEET FROM RAIL-LEVEL TO BED OF STREAM

year a vote of £80,000 is proposed. (Main line, 106 miles; open, 30 miles.)

"*East Coast Main Trunk.*—The trial survey for a railway between Waihi and Tauranga, which was in hand last year, has since been completed. The survey was also carried on as far as Matata.

"The Government is strongly impressed with the necessity for a trunk railway through the important Bay of Plenty district, and that will eventually connect Auckland with Gisborne and the whole of the East Coast settlements, and considers that the time has now arrived to make a commencement with the work. It is, therefore, proposed to include the section of the line between Tauranga and Te Puke in the Schedule to the Railways Authorization Bill of the current year.

"If the Bill is duly passed by Parliament, arrangements will be made to commence con- miles, and ballasting is in hand. Plans for the steel viaduct at Otoko have been prepared, and tenders for its construction will shortly be invited.

"Last year's expenditure amounted to £40,601, which is the largest sum spent on the line in any one year since its construction was commenced. Having in view the importance and urgency of the railway, and the proposal to commence the new section between Tauranga and Te Puke, it will be necessary to expend a still larger sum during the current year, and a vote of £80,000 is therefore asked for.

"*Stratford Main Trunk.*—Work has been vigorously proceeded with throughout the year at the Stratford end of this railway, and the section between Huiroa and Te Wera is now approaching completion. The construction of the Pohokura section is also well in hand, the first four miles being almost finished, and the it through, as a portion of the line had only very recently been laid and many miles of it were entirely unballasted. Since that date the line has been completed and handed over to the Working Railways Department, and regular through trains have been run since the 15th February last.

"The vote of £225,000 taken on last year's Appropriations proved to be in excess of requirements. Only £140,833 came to charge during the year, but as a number of liabilities remained on 31st March last, a vote of £20,000 is provided on the present estimates to cover same.

"*Blenheim-Waipara.*—At the northern end, the section between Seddon and Blind River has been completed, and goods traffic is being carried over it by the Public Works Department for the convenience of settlers. The further section to Ward, which is as far as the railway

is authorized at present, is also approaching completion. To enable the construction of this line to be continued it will be necessary to obtain authority to take another section in hand, and provision will accordingly be made in the Railways Authorization Bill for a further length of three miles and a quarter.

"At the south end the formation has been completed to Mina Station, near Mackenzie Township, which is as far as the line is authorized at present, and rail-laying has been started. A contract has also been let for the important combined road and railway bridge over the Waiau River. This bridge will be 2,312 ft. in length, and is to be completed by 19th November next. The contract sum is £20,467. It is desirable that the extension of this line, at any rate as far as the bridge, and to a convenient station-site beyond it, should be authorized, and provision for this will be made in the Railways Authorization Bill.

"The expenditure on the whole railway last year amounted to £36,761, and for the current year a vote of £45,000 is proposed.

"*Midland.*—At the Nelson end of this railway the section between Tadmor and Kiwi, which was nearly finished when last year's Statement was delivered, has since been completed and handed over to the Railway Department, and the section between Kiwi and Tui is now approaching completion, the rails being laid as far as the north end of the Tui station-yard. The further section between Tui and Hope Junction authorized last year has beent aken in hand and satisfactory progress made with it. I am in hopes that this section will be complete and ready for traffic about the end of the summer of 1911, at which date it is probable that the Reefton-Inangahua Railway will be completed to Inangahua Junction, thus reducing the coach journey between Nelson and the West Coast to about fifty-two miles, and enabling the through journey between Nelson and Greymouth to be accomplished in one day.

"At the Reefton end of the line good progress has been made with the section between Cronadun and the Inangahua Landing. The larger bridges are finished, the earthworks are nearing completion, and rail-laying will be resumed shortly. The short section between the Landing and the Inangahua Junction will be taken in hand without delay, and every effort made to have the railway completed to that point by about February, 1911.

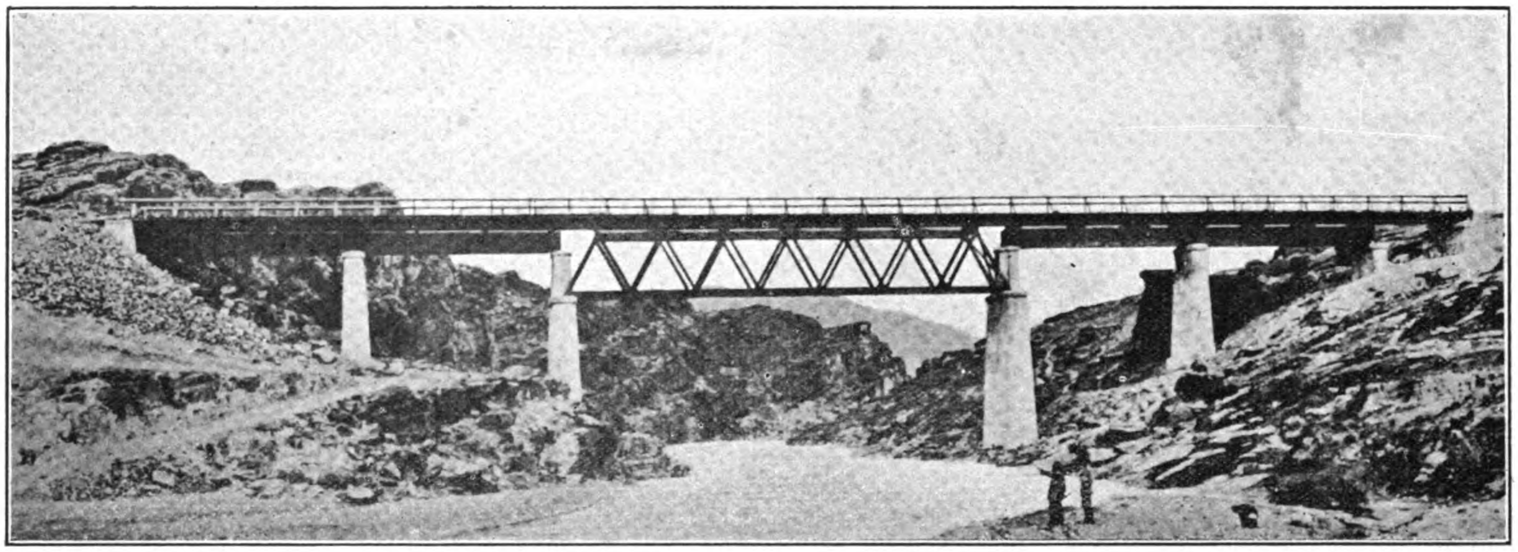
"On the Canterbury-Westland Section of the railway very important works are in hand, and considerable progress has been made during the year. The chief work, of course, is the summit tunnel at Arthur's Pass, for which a contract was let to Messrs. John McLean and Sons, in August, 1907. Considerable progress has been made with this work, the "heading" having now been excavated for a total distance of about a mile. Enlarging to full size is also in hand, and the concrete lining is following up. It is evident, however, that progress in the future must be much greater than hitherto if the contract is to be completed by the date stipulated—namely, 1st August, 1912.

"At the Canterbury end of the line, Mr. Fraser's contract for the steel viaduct over Sloven's Creek has been completed, and rail-laying resumed. The formation being practically finished as far as the Cass, there will be nothing to prevent the rails being laid to that point without interruption. As soon as the line to the Cass is ready for traffic it will be handed over to the Railway Department for regular working, thus shortening the coach journey between the east and west coasts to about twenty-five miles, and making the performance of the through journey in one day quite an easy matter, even during the winter months.

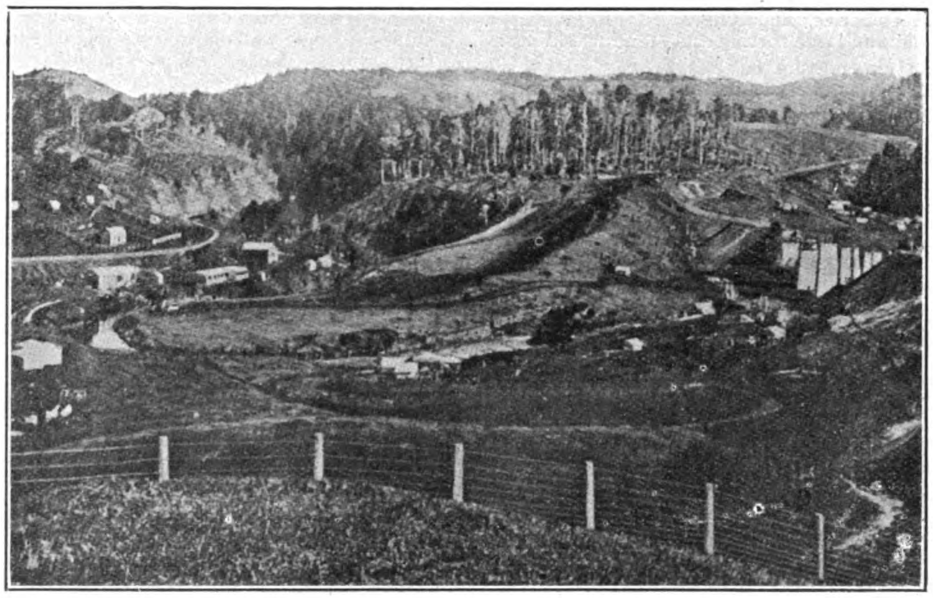
"The expenditure on the whole railway last year amounted to £124,402, and for the current year a vote of £170,000 is asked for, made up as under:—

	£
Nelson-Inangahua Section	25,000
Reefton-Inangahua Section	15,000
Otira Station to Tunnel Section	5,000
Arthur's Pass Tunnel Section	65,000
Broken River to Baeley Section	60,000
Total	£170,000

"*Westport-Inangahua.*—The section of this railway between Westport and Kuha, 5 miles 60 chains in length, is nearly finished. It would have been completed earlier but for the delay which took place in the completion of the contract for the erection of the bridges: The felling of the bush on the second section, which is almost entirely in the Buller Gorge, is nearly finished, and formation work commenced. The work is of such a character, however, that it can be carried out more advantageously in small contracts than under the co-operative system, and it is consequently proposed to shortly invite tenders for its construction in short sections.



OTAGO CENTRAL RAILWAY.—COMBINED ROAD AND RAILWAY BRIDGE OVER THE MANUHERIKIA RIVER AT ALEXANDER



HORSE-SHOE CURVE NEAR TURANGARERE ON THE NORTH ISLAND MAIN TRUNK RAILWAY DESCRIBES THREE QUARTERS OF A CIRCLE

Last year's expenditure totalled £8,567, but a vote of £20,000 is proposed for the current year.

"*Ngahere-Blackball.*—A considerable amount of work has been done on this railway during the year, and the line is now approaching completion. An extensive coal traffic is already being carried by the Public Works Department for the convenience of the Blackball and Paparoa Coal Companies. This traffic considerably impedes the completion of the line, but the work is expected to be finished and handed over to the Railway Department early in the new year.

"The expenditure during last year amounted to £33,804. For the current year a vote of £30,000 is proposed, which will provide for the completion of all remaining work.

"*Greymouth-Point Elizabeth.*—Formation work on the extension of this railway to the proposed No. 2 State Colliery has been actively in hand during the year. The line is a comparatively short one—three miles and a half—but the works upon it are of a heavy character. Moreover, as a large coal traffic is anticipated, it is necessary to provide extensive terminal facilities at the collieries, including a site for a very large bin and large sorting and standing sidings.

"The expenditure on this railway last year (£24,984) was charged to the State Coal-mines Account, but it is considered inadvisable to allow the amount to remain at the debit of that account, and it is therefore proposed to provide in this year's Appropriation Bill for the transfer of last year's expenditure from the State Coal-mines Account to the Public Works Fund, and also to make special provision for the estimated expenditure of the current year, which will probably amount to nearly £50,000.

"*Hokitika-Ross.*—The fina section of this railway was opened for traffic on the 1st April last.

"The expenditure during the year amounted to £14,298. Sundry minor finishing works remained to be executed after the line was handed over, however, and a vote of £4,000 appears on the estimates to cover these.

"*Lawrence-Roxburgh.*—The construction of this line, between Lawrence and the Big Hill Tunnel has been proceeded with during the year. The formation is practically finished, and the rails are laid for the greater part of the distance, and ballasting is in progress. It is proposed to complete the section to Big Hill, and to open it for traffic as soon as it is ready. The question of carrying the work on beyond that point, however, is one that requires careful consideration. The Government is at present unable to see its way to take any further steps in the matter unless an adequate guarantee is forthcoming that reasonable interest on the capital invested will be returned.

"Last year's expenditure on the railway amounted to £14,076, and for the current year a vote of £12,500 is provided.

"*Gore-Waikaka.*—This line was handed over to the Railway Department on 26th November, 1908, or a little earlier than anticipated in last year's Statement. It was not quite finished at that date, but the various unfinished works have been completed since.

Last year's expenditure amounted to £29,549—namely, £16,158 from the vote for railway-construction, and £13,391 from the special account established under "The Waikaka Branch Railway Act, 1905." For the current year a small vote of £3,000 will be necessary to meet expenditure already incurred.

"*Catlin's-Waimahaka.*—The section of this line between Catlin's River and Houipapa was available for goods traffic when last year's Statement was brought down. It has since been entirely completed, and the Public Works stone-crushing and ballasting plant removed further on. The section was handed over to the Railway Department for regular working in the early part of the present month.

"The earthwork on the Papatupu section is practically completed, and platelaying and ballasting well in hand. A great deal of work has also been done on the Table Hill section, but, being of a heavy character, it will still be some little time before it is finished.

"At the Waimahaka end of the line a large amount of work has been done. The number of men has been considerably increased. The authorization of the line at this end is about a mile and a half short of the terminus at present proposed, and provision for the necessary amendment in the Act to authorize the remaining distance is made in this year's Railways Authorization Bill. The same Bill will also provide for an extension at the Catlin's end of the line—namely, to the confluence of the McLennan and Tahakopa Rivers.

"The expenditure on the whole railway during the last financial year was £35,091, and for the current year an appropriation of £80,000 is asked for.

"*Riversdale-Switzers.*—Excellent work was done on this railway during the year. When last year's Statement was delivered only two miles of rails had been laid, and about eight miles of formation was in an advanced condition. The whole line—fourteen miles in length—has since been completed, and was handed over to the Railway Department for regular traffic on the 1st October last.

"The expenditure during the year amounted to £20,478, and a vote for £20,000 will be necessary this year in order to clear accounts.

"*Orepuki-Waiau.*—On this line also very good work was done last year, the railway having been completed and the line opened for traffic on 1st October last.

"The expenditure during the year amounted to £15,846, and a vote for £15,000 is provided on the estimates to cover the expenditure of the current year.

"*Surveys.*—A very considerable list of proposed surveys was mentioned by my predecessor in his last Public Works Statement—sufficient, it seems to me, to keep the officers likely to be available from the departmental staff busily employed for years to come. Much important survey-work was done during the past year, however, principally on the North Auckland, East Coast Main Trunk, Paeroa-Pokeno, Blenheim-Waipara, and Catlins-Waimahaka Railways. The other lines mentioned in Hon. Mr. Hall-Jones's list will receive attention as soon as opportunity offers.

"Last year's expenditure on surveys of new lines amounted to £5,462, and for the current year a vote of £2,000 is asked for.

"*Total Appropriations for Railway-construction.*—In addition to the amounts already mentioned, a vote of £100,000 is proposed for permanent-way materials, and £1,000 for old land claims and other old contingent payments on construction account. These items bring the total proposed vote for railway-construction purposes up to £790,000.

"*Other Railway-works.*—The sum of £260,731 was spent in providing rolling-stock and workshops machinery for the working railways, and £128,941 on additions to station-accommodation, wharves, signalling-appliances, interlocking, tablet working, telegraphs, and telephones, making the total expenditure under the heading of "Additions to Open Lines" £389,672.

"The Wellington-Hutt duplication has been completed and brought into use between Kaiwarra and the Hutt. Portions of the new main road for vehicular traffic are in daily use, and the construction of the other portions is ebing pushed on.

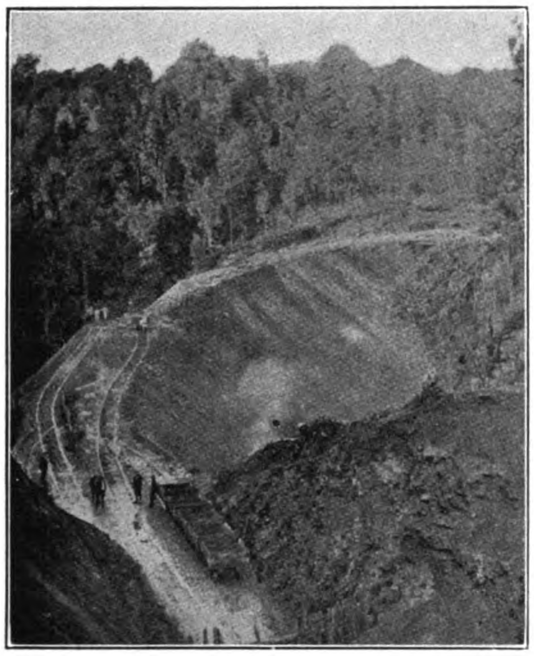
"The double line between Addington and Rolleston will shortly be ready for traffic. The double line between Newmarket and Penrose has been opened for traffic, and a large amount of construction-work has been carried out in connection with the Dunedin-Mosgiel duplication. On the Auckland side of the Parnell Tunnel one portion of the two-track railway-bridge has been brought into use, and work on the other is in hand. The expenditure during the last financial year on the works referred to was £207,942, made up as follows:—

	£
Wellington-Hutt duplication works..	53,951
New Hutt Road, including land for same...........................	12,457
Auckland-Penrose duplication works	31,005
Addington-Rolleston duplication works........................	73,510
Dunedin-Mosgiel duplication, and deviation of line................	73,019
	£207,942

"For the current year provision has been made on the estimates to the extent of £180,602, namely:—

	£
Auckland-Penrose duplication......	5,000
Wellington-Hutt duplication........	74,602
Addington-Rolleston duplication....	11,000
Dunedin-Mosgiel duplication........	90,000
	£180,602

"The amount proposed to be voted for the current year for 'Additions to Open Lines' is £350,000, of which £250,000 is for new rolling-stock and additional workshops machinery."



NORTH ISLAND MAIN TRUNK RAILWAY.—110 FT. BANK ON SPIRAL

FAR EASTERN COMPANY REPORTS

THE HONGKONG AND SHANGHAI BANKING CORPORATION.—The following is the eighty-ninth report of the Court of Directors covering the six months ended December 31st, 1909, submitted to the Proprietors of the Hongkong and Shanghai Banking Corporation:

Gentlemen,—The directors have now to submit to you a general statement of the affairs of the bank and balance sheet for the half-year ending 31st December, 1909.

The net profits for that period, including $2,001,819.19, balance brought forward from last account, after paying all charges, deducting interest paid and due, and making provision for bad and doubtful accounts, amount to $5.307,941 43.

The directors recommend the transfer of $250,000 from the profit and loss account to credit of the silver reserve fund, which fund will then stand at $15 500,000.

After making this transfer and deducting remuneration to directors there remains for appropriation $5,042,941.43, out of which the directors recommend the payment of a dividend of two pounds sterling per share, viz., £240,000, and a bonus of five shillings sterling per share, viz., £30,000, amounting in all to £270,000 which at 1/9½, the rate of the day, will absorb $3,013,953.49.

The balance $2,028,987.94 to be carried to net profit and loss account.

Branches and Agencies.—Sub-agencies of the Bank have been opened at Hongkew (Shanghai), Malacca (Straits Settlements), and Kuala Lumpur (Federated Malay States).

Directors.—Mr. H. E. Tomkins has been elected chairman for the year 1910, and Mr. G. Balloch deputy chairman.

Mr. H. A. W. Slade and Mr. W. Helms having resigned their seats on leaving the Colony, Mr. G. Balloch and Mr. F. Lieb have been invited to fill the vacancies; these appointments require confirmation.

Mr. C. R. Lenzmann, Mr. H. E. Tomkins and Mr. C. S. Gubbay retire in rotation, but being eligible for re-election, offer themselves accordingly.

Auditors.—The accounts have been audited by Mr. W. Hutton Potts and Mr. J. W. C. Bonnar, who offer themselves for re-election.

W. J. GRESSON,
Chairman.

Hongkong, 8th February, 1910.

Abstract of assets and liabilities, Hongkong and Shanghai Banking Corporation, 31st December, 1909:—

LIABILITIES.

Paid-up capital		$15,000,000.00
Sterling reserve fund £1,500,000 at ex. 2/-		15,000,000.00
Silver reserve fund		15,250,000.00
Marine insurance account		250,000.00
Notes in circulation:—		
(Authorized issue against securities and coin deposited with the Crown agent for the colonies and their trustees)	$15,000,000.00	
Additional issue authorized by Hongkong ordinances against coin lodged with the Hongkong Government	30,188.00	
		15,030,188.00
Current accounts:—		
Silver	$97,460,231.04	
Gold £5,422,164 18s. 6d =	60,513,280.03	
		157,973,511.00
Fixed deposits:—		
Silver	$63,225,257.13	
Gold £4,586,318 6s. 5d.=	51,191,676.19	
		114,446,933.32
Bills payable (including drafts on London bankers, call loans and short sight drawings on London office against bills receivable and bullion shipments)		21,480,773.00
Profit and loss account		5,307,941.43
Liability on bills of exchange rediscounted, £4.500,388 9s. 5d. of which £3,010,659 13s. 4d. have since run off		$359,739,348.82

ASSETS.

Cash		$49,624 147.34
Coin lodged with the Hongkong Government against authorized and/or excess note circulation		13,000,000.00
Bullion in hand and in transit		6,487,602 55
Indian Government rupee paper		2,419,349.51
Consols, colonial and other securities		14,881,698.82
Sterling reserve fund investments, viz:—		
£1,208 000 2½ per cent. consols at 82 (of which £250 000 lodged with the Bank of England as a special London reserve).	£990,560	
£255,000 2¾ per cent., national war loan at 90	229,500	
£325,000 other sterling securities, written down to	279,940	
	£1,500,000 at ex. 2/ =	15,000,000.00
Bills discounted, loans and credits		108,502,308 88
Bills receivable		147,889 789.11
Bank premises		1,934,450.61
		$359,739,346.82

GENERAL PROFIT AND LOSS ACCOUNT.

31st December, 1900.

Dr.

To amount written off:—remuneration to directors		$15,000.00
To dividend account:—		
Dividend £2 per share on 120,000 shares=£240,000 at 1/-9½=	2,679,069.77	
Bonus 5/- per share on 120,000 shares =£30,000 at 1/-9½=	334,883.72	
		$3,013,953.49
To transfer to silver reserve fund.		250,000.00
To balance forward to next half-year		2,028,987.94
		$5,307,941.43

Cr.

By balance of undivided profits, 30th June, 1909	$2,001,819.19	
By amount of net profits for the six months ending 31st December, 1909, after making provision for bad and doubtful debts, deducting all expenses and interest paid and due	$3,306,122.24	
		$5,307,941.43
		$5,307,941.43

STERLING RESERVE FUND.

To balance, £1,500,000 at ex. 2/- (invested in sterling securities.)	$15,000,000.00
	$15,000,000.00
By balance 30th June, 1909, £1,500,000 at ex. 2/-	$15,000,000.00
	$15,000,000 00

SILVER RESERVE FUND.

To balance	$15,500,000.00
	15.500,000.00
By balance 30th June, 1909	$15,250,000 00
By transfer from profit and loss account	250,000.00
	$15,500,000.00

THE KANEGAFUCHI COTTON MILL.—For the half year a dividend of 14% per annum was declared.

THE CHINA AND MANILA STEAMSHIP COMPANY, LTD.—The following report of this company to be presented at the twenty-seventh general meeting is to the effect that the profit on working for the year ending 31st December, 1909, is $26,941.54 and after payment of interest and other charges there remains a debit balance of $3.777.33 to be carried forward to next year's account.

The s.s. Rubi and Zafiro have kept up the service without intermission and are in first class order and condition.

Mr. A. V. Apcar has resigned from the consulting committee; Messrs. H. P. White and Dr. J. W. Noble retire and are eligible for re-election.

The Accounts have been audited by Messrs. W. H. Potts and A. O' D. Gourdin who are eligible for re-election.

THE HONGKONG AND WHAMPOA DOCK COMPANY.—The following is the report of the directors to the shareholders of this company:

Gentlemen.—The Directors have now to submit their report, with a statement of accounts, for the half-year ended 31st December, 1909.

Balance brought forward from last half-year		$345,162.36
Less		
Loss on the current half-year's working	$23,747.04	
Cost of re-organization for half-year	9,483.40	
Directors' and auditors' fees	9,166.00	
Provision made for depreciation of stock	170,000,00	
		$212,396.44

Leaving balance to carry forward to new account, $132,765.92.

During the six months two new steamers, were completed, also twelve lighters.

New work in hand consists of rolling stock for Kowloon-Canton railway (British section), five steam launches (one being for stock), two motor boats, two oil barges, and two lighters to replace two lost in transit to Manila.

Service launches K 5 and C 2 and 3 have been sold recently and realized good figures.

The new Chief Manager and Secretary commenced duty in October and November respectively. The head office has been transferred to Kowloon Docks, and was occupied in beginning of November last.

Work on the No. 1 Dock extension makes satisfactory progress.

Directors.—Mr. W. Helms having resigned his seat on leaving the Colony, Mr. F. Lieb was invited to join the Board in his place, and this appointment now requires confirmation. Mr. S. Silverstone also resigned on leaving the Colony.

In accordance with Clauses 78 and 85 of the articles of association Sir C. P. Chater, Kt., C. M. G., and Mr. H. P. White retire by rotation, but offer themselves for re-election.

The Honorable Mr. W. J. Gresson has been re-elected chairman for 1910.

Auditors —The accounts have been audited by Mr. H. Percy Smith, F. C. A., and Mr. A. R. Lowe, C. A. (in place of Mr. H. U. Jeffries resigned). The directors recommend Messrs. Smith and Lowe for re-election.

HUMPHREYS ESTATE AND FINANCE COMPANY, LTD.—A dividend of 4 5% was authorized and a balance of $5,471 carried forward.

BANK OF BURMA, LTD.—This institution paid a dividend of 7% for the half year ended December 31st, 1909, making 14% for the year besides carrying Rs. 1,50,000 to the reserve.

BANK OF BENGAL.—This institution paid 10% per annum with a bonus of 2% besides placing Rs. 2,00,000 to reserve; Rs. 50,000 to Gratuity and Pension Fund and carrying forward Rs. 2,31,059.

BANK OF MADRAS —A dividend of 10%; bonus 1%; Rs. 1,50,000 reserve and forward Rs. 1,72,000.

THE YALU TIMBER COMPANY.—After paying China $110,000 as her share of the profits a dividend of 7.5% was distributed.

THE SUMATRA PARA RUBBER PLANTATIONS, LTD.—This company has declared a dividend of 3d. per share.

YOKOHAMA ENGINE AND IRON WORKS.—During the half year this company sustained a loss of yen 12,000 owing to business depression and reduced the balance to credit to yen 27,600.

THE GRAND HOTEL LTD.—This company paid a dividend of 2.50 yen per share for the year.

THE BENGUET CONSOLIDATED MINING COMPANY.—The following is the report of the directors for the year 1909:

Assets:		
Mine	₱199,411.74	
Mill	101,610.33	
Mcls. Buildings	6,421.19	
Furniture & Fixtures	1,608.88	
Fire System	1,374.52	
Inventory	15,196.56	
Cash in Bank	292.26	
Accts. Receivable	3,357.10	
Shortage Claim Acct.	208.10	₱329,480.68
Liabilities:		
Stock	₱214,657.84	
Accts. Payable	12,590.42	
Profit & Loss	102,232.42	₱329,480.68

Note:—The value of the above property accounts is that shown by the books of the company, without any deductions being made for damage done by the typhoon in October last.

Additions to Property Accounts during 1909:

Mine—for development.	₱20 339.96
Mill—additions	25,044.85
Mcls. Bldgs.—additions	2,428.17
Furniture & Fixtures—additions	626.13
Fire System—additions	864.75
Store & Bodega—supplies—	8,196.56
	₱57,500.42

Profit & Loss Account.

Returns from Bullion for 1909,	₱146,834.97	
Operating Expenses	82,673.00	
Net Profit for 1909	64,161.97	
Credit to Profit & Loss January 1, 1909,	38,070.45	₱102,232.42

TO THE SHAREHOLDERS:—

The storm in October carried away practically all of our milling plant except the stamps and power wheel. These were but slightly damaged and are now engaged in crushing the ore necessarily handled in repairing the damage to the mine. While the returns from this ore will be small, they should defray the cost of putting the mine into shape.

The future policy of the company is undetermined at present as this policy depends largely upon the report and recommendations of the mine foreman. There is more than ₱600,000 worth of ore blocked out, so it is needless to state that the company will go ahead as soon as the best method for further exploitation can be determined upon.

SAMSEN DOCK AND ENGINEERING COMPANY, LTD.—The profit for the half year ended 20th Sept. last, after allowing for depreciation, was Tcs. 14,299. From this sum the Directors proposed to pay a dividend at the rate of 12% per annum on the 50% paid up shares, Tcs. 2,402; to pay a similar dividend on the fully paid up shares, Tcs. 588; to place 5% net profit to reserve, Tcs. 714; to place 10% net profit to special reserve, Tcs. 1,429; to pay 10% net profit balance of Manager's salary, Tcs. 1,429; bonus to staff, Tcs. 485; to writing off 25% flotation expenses, Tcs. 786; to writing off 1/20th of goodwill, Tcs. 1,000, and to carry balance Tcs. 5,468 forward to next half year.

HONGKONG ROPE MANUFACTURING COMPANY, LTD.—The report for presentation to the shareholders at the twenty-sixth ordinary general meeting to be held at the office of the General Managers on Saturday 12th February, says that the balance on 31st December, 1909, at credit of profit and loss account is $89,176 50, which it is proposed to appropriate as follows:—

To place to reserve fund	$20,000.00
To pay a final dividend of $1.00 per share	60,000.00
To carry forward to the credit of next year's account	9,176 50

In accordance with the articles of association Messrs. H. P. White, D. W. Craddock, and Dr. J. W. Noble retire from the Consulting Committee but offer themselves for re-election.

The accounts were audited by Messrs. W. H. Potts and A. O'D. Gourdin, who are recommended for re-election.

THE TOKYO CREDIT COMPANY.—This company declared a dividend on December 21st for the half year term of 10 per cent.

THE YOKOHAMA FIVE PRODUCE EXCHANGE.—This company distributed a dividend of 14 8%.

THE TOKYO ELECTRIC LIGHT COMPANY.—At the regular meeting held December 23rd a dividend of 12% was declared for the term.

THE TOKYO STEEL FOUNDRY.—A dividend of 18% per annum was declared at the regular meeting for the half year.

THE OSAKA STOCK EXCHANGE.—This institution paid a dividend of 14% per annum for the half year term.

ODAWARA ELECTRIC RAILWAY COMPANY.—A dividend of 7½% was declared by this company for the half year term.

THE NISSHIN FLOUR MANUFACTURING COMPANY.—This company paid a dividend of 8%.

THE TOKYO MOUSLINE COMPANY.—A dividend of 5% was paid out of the net profits of the half year term.

THE CHINA PROVIDENT LOAN AND MORTGAGE CO., LTD.—The report of the directors of this company shows a balance to credit of profit and loss at the end of the year of $103,602.60 which they recommend distributed as follows:

To place to Reserve Fund	$1,000.00
To pay a Dividend of 80 cents per share	$100,000.00
To carry forward to the credit of next year's account	$2,602.60

MALACCA RUBBER PLANTATIONS, LTD.—Profits for the year amount to £75,000 out of which a dividend of 10% has been recommended.

THE TOKYO RAILWAY COMPANY.—The report for the half year shows a profit of Yen 119,000 out of which a dividend at the rate of 6.6% per annum was paid.

THE NISSHIM COTTON MILL.—This company authorized the payment of a dividend of 7% for the half year recently ended.

THE TOKYO COTTON MILL, LTD.—The following is the statement of accounts submitted and the recommendations approved at the half yearly meeting of the shareholders:

	yen.
Net profits	114,287
Balance brought from previous account	32,885
Total	147,172
To reserve	8,000
To bonus to officials	7,500
To pension fund for operatives	3,000
Dividend on old shares (8% per annum viz 2 yen per share)	48,000
Dividend on new shares (8% per annum viz 66 sen per share)	47,500
Carried to next account	33,152

THE TOKYO GAS COMPANY.—This company declared a dividend for the year at the rate of 13%.

THE LAOU KUNG MOW COTTON SPINNING AND WEAVING COMPANY, LTD.—Of the credit to profit and loss account of Tls. 86,905.59, the following distribution was recommended by the directors:

		Tls.
To Payment of a Dividend of Tls. 6 per share		48,000.00
" Depreciation of Mill Buildings	5,000.00	
" Depreciation of Machinery	23,596.69	
		28,596.66
To 10% Commission on Tls. 53,479.14 (being Tls. 86,905.59 less Tls. balance 4,829.76 of 1908 % and Tls. 28,596.69 proposed for depreciation) to the General Managers in accordance with their agreement		5,347.91
To be carried forward to the New Account		4,860 99

THE BALGOWNIE RUBBER COMPANY, LTD.—This company paid a dividend of 25% last month.

THE IMPERIAL HOTELS, LTD.—The following distribution of profits were made at the last meeting of the shareholders for the term:

	yen.
Net profits	21,438
Brought from previous term	10,159
Total	31,597
Legal reserve	2,000
Bonus to officials and others	2,843
Dividends to shareholders (6% per annum)	22,500
Carried to next term	4,954

THE EMPIRE HEMP THREAD MANUFACTURING COMPANY.—This company made the following distribution of the net profits for the last term:

	yen.
Net gains	345,691
Balance brought from previous term	7,667
Total	352,358
Legal reserve	17,500
Special reserve	25,000
Dividends to shareholders (12% per annum	288,000
Bonus to officials & others	15,000
Balance to be added to next accounts.	7,958

THE TOKYO FARMERS' AND MECHANICS' BANK. This institution paid a dividend of 10% for the term.

THE EMPIRE COMMERCIAL BANK.—The following statement was adopted and distribution made:

	yen.
Net receipts	147,883
Brought from previous term	11,517
Total	159,400
Reserve	15,000
Bonus to officials and others	8,872
Dividends to shareholders (6% per annum)	120,000
Carried forward	15,528

HONGKONG, CANTON AND MACAO STEAMBOAT CO, LTD.—The company pays a dividend of $1.26 besides writing off $100,000 for depreciation, carrying $10,000 to the insurance and forward $20,766.39.

THE HONGKONG LAND INVESTMENT COMPANY, LTD.—This company declared a dividend of $3.50 a share making $7 for the year.

THE WEST POINT BUILDING COMPANY, LTD.—This company paid a final dividend of $1.80 a share making $3.80 for the year ended December 31st, 1909.

HONGKONG LAND RECLAMATION CO., LTD—This company paid a dividend of 7% and carried forward a balance of $304,148.17 to the credit of profit and loss for the year ended December 31st, 1909.

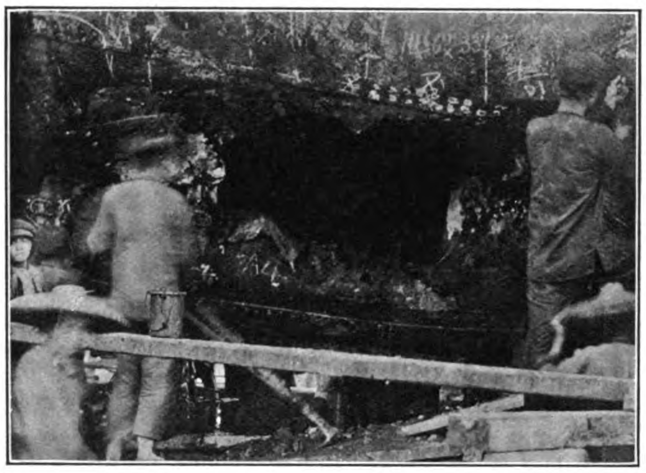
BANK OF BENGAL.—The following distribution of the net profits of this institution for the year was made at the recent meeting

In payment of a dividend at the rate of 10 per cent. per annum ....Rs.	10,00,000
Bonus at 2 per cent	4,00,000
Transferred to Reserve Fund	2,00,000
Transferred to Gratuity and Pension Fund	50,000
Carried to next half-year	2,31,058

HIGHLANDS AND LOWLANDS PARA RUBBER CO., LTD.—A further interim dividend of 7% was made payable January 17th, 1910.

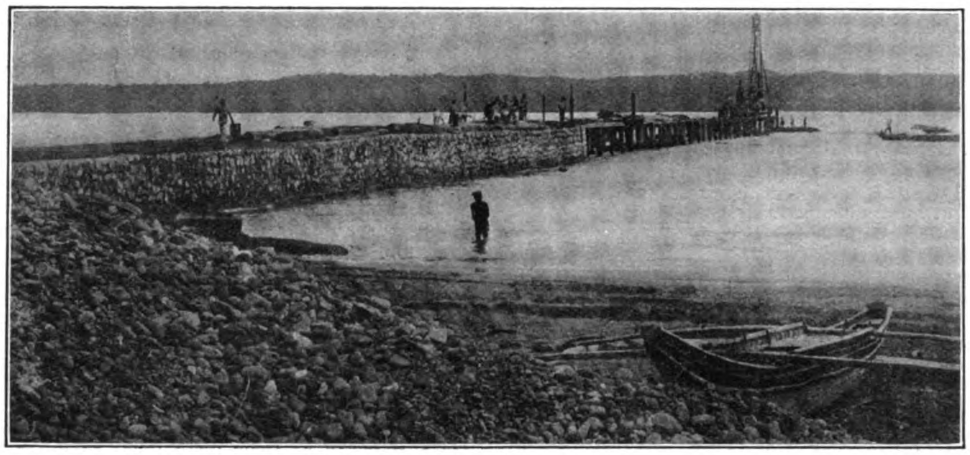
THE FIFTEENTH BANK.— The following distribution was made of the profits of this institution for the last half year.

	yen.
Net receipts	961,656
Brought forward from previous accounts	724,669
Total	1,686,325
Reserve	100,000
Bonus to officials	48,000
Dividend to shareholders (9% per annum)	810,000
Carried to next account	728,325



A SMART BIT OF SALVAGE AND REPAIR WORK AT HONGKONG

The above photograph gives a comprehensive idea of the damage sustained by the S. S. Flume that recently went on the rocks in the Balabac Straits where she lay exposed for a day and a half. After being assisted to Cebu where she lay for about four months, she was sold at auction for something under ₱8,000. A smart bit of temporary repair work enabled the steamer to proceed under her own steam to the docks of the Hongkong and Whampoa Dock Company, Ltd., Hongkong, where she was placed on the slip for examination. This revealed the enormous rent as shown in the photograph. The steamer has been completely overhauled and about to be put in service again.



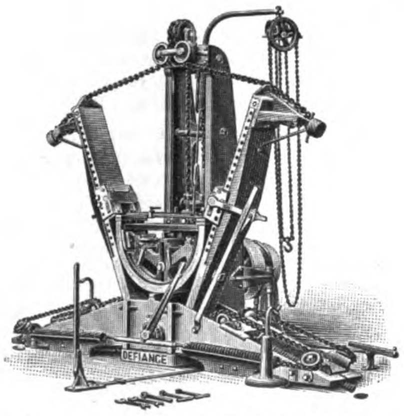
DAVAO WHARF

Among the many public improvements carried out in Mindanao under the progressive administration, the wharf at Davao is perhaps the most important since it greatly facilitates the handling of the products exported from that new colony. As is well known, Davao is surely developing into one of the most important hemp growing districts in the islands, and every year her trade almost doubles.

The appropriation made for the construction of this wharf by the Moro Government amounted to ₱60,000. It extends 810 feet into the bay giving 30 feet of water alongside at low tide thus enabling large steamers to berth conveniently. The work was under the supervision of Engineer A. T. Bienbaum. It was begun in October, 1908, and completed in the spring of 1909.

The woods used in construction, including molave, liusin, and pigau, were gotten out by the supervising engineer. As may be seen in the illustration, the first 250 feet of the wharf is stonework with sand filling.

The completion of this wharf makes Davao one of the most attractive ports in the islands and it is anticipated that, as the colony grows, it will more and more attract the shipping trade by its desirability.



AUTOMATIC WOOD BENDING MACHINE

The illustration is that of a pattern 12″ Automatic Wood Bending Machine manufactured by the Defiance Machine Works of Defiance, Ohio. This machine is designed to meet all the requirements for the successful and economical bending of felloes for automobile, carriage and wagon wheels, wagon hounds, carriage bows, reaches and all other classes of bent wood work. The machine is capable of adjustment to accommodate changes from 13.5″ to 72″ circles and will bend felloes from those required on the lightest carriage to those for truck or artillery wheels as large as 5″ thick and 12″ wide. The manufacturers have provided in this machine an entirely new feature in the application of the power with the object of giving a drastic longitudinal stress upon the timber to be bent. A swinging crane with a hoist attached is furnished with each machine which aids the operator in placing the forms in and out of the machine, and when not in use may be swung out of the way. The capacity of this machine is sufficient to bend about 2,500 felloes 1.5″ or about 1,200 wagon hounds in ten hours. It can be driven by one horse power engine and the floor space occupied is 172″×72″×117″ high.

The advertisement of this company may be found on page 20 of the advertising section.

FAR EASTERN RAILWAYS

HALF-YEAR BUDGET ESTIMATE FOR THE SHANGHAI-NANKING RAILWAY.—The following is the budget estimate approved for the first half-year, 1910:

Receipts.		Actuals ½ yr. ended June, 1909	Estimate ½ yr. ending June, 1910
Coaching traffic earnings...		780,699	824,750
Goods " " ...		115,609	145,000
Telegraph " ...		172	250
Sundries " ...		19,567	20,000
Total Earnings.......		916,047	990,000
Add decrease or deduct increase, in balance of Traffic Account........		—2,248	—10,000
Deduct decrease, or add increase, in balance of Foreign Railways..........		—265	....
Total Receipts		913,534	980,000
Expenditure.	Percentage on gross earnings.		
Maintenance of Way Works and Stations............	10.08	90,217	99,800
Locomotive Expenses..............	18.48	173,294	182,900
Carriage and Wagon Expenses.....	5.13	39,970	50,800
Traffic Expenses....	13.49	130,263	133,500
General Charges....	15.50	152,385	153,500
Flotilla Expenses...	0.05	148	500
Special Expenses....	2.12	19,415	21,000
Total Working Expenses (III)......	64.85	605,692	642,000
Add increase or deduct decrease, in balance of Misc. Advances..............		....	....
Deduct increase, or add decrease in balance of "Demands Payable"........		—18,073	—5,000
Net Expenditure........		587,619	637,000
Net earnings...........		310,355	348,000
Net receipts............		325,915	343,000

Memorandum	*Miles.*
Number of miles open for traffic on 30th June, 1909................	203
Opened during half-year ended 31st December, 1909................	Nil.
Total on 31st December 1909...	203
Expected to be opened during half-year ending 30th June, 1910......	Nil.
Total likely to be open on 30th June, 1910.....................	203
Train miles expected to be run during half-year ending 30th June, 1910.........................	425,0000
Cost per train mile................	$1 51

THE SZECHUAN TIBET RAILWAY.—Peking is again taking great interest in the construction of this line and the Boards of Finance and Posts and Communications are working on a scheme to further the enterprise. It is reported that H. E. Liu Chaun lin will be selected as Director in Chief of the line.

THE SINGAPORE-KRANJI RAILWAY.—The report for 1909 gives the information that 464,000 passengers with a revenue from this source of $181,775 and the receipts from freight traffic amounted to $34,000 making in all an increase in revenue of $39,000 over the previous year.

THE AMUR RAILWAY.—The Russian government has appropriated approximately Roubles 22,000,000 for the construction of this line during the year 1910. This will guarantee construction on the main line and western and eastern extension, simultaneously.

THE TIENTSIN PUKOW RAILWAY.—The Northern Section of this line has been completed to Chuang Chow and construction trains are utilizing the track for carrying material.

JAPAN GOVERNMENT RAILWAYS' ROLLING STOCK.—The Railway Board has under its jurisdiction 2,500 locomotive engines, 6,000 passenger carriages and 35,000 goods vans, and it is proposed to increase the number in each division by about 5% to meet the increased traffic.

JAPANESE STATE RAILWAYS.—The report for the first ten days of December indicate a remarkable increase of traffic. The average traffic mileage was 4,617, an increase of 83 miles compared with the corresponding period, 1908. The number of passengers was 3,012,000 which shows an increase of 622,000 compared with the figures of the previous year. The freights conveyed were 686,000 tons which show an increase of 5,000 tons. The passenger receipts were 1,014,000 *yen* showing an increase of 22,000 *yen* over the figures of the previous year, while freight receipts were 1,124,000 *yen* which shows an increase of 76,000 *yen* compared with the figures of the previous year. On the whole, there are attained favorable results. The average daily receipts are 213,000 *yen* while the average receipts per mile a day are 46 *yen* 30 *sen*.

SAIGON-HANOI RAILWAY.—Another section of this railway was opened on December 27 and the railway is now operating from Saigon for a distance of 118 miles. The construction was very difficult as the climate is very bad and many engineering difficulties had to be surmounted.

KIRIN-CHANGCHUN.—The survey of this line began from both ends the latter part of last month.

LUNGCHOU-NANNING RAILWAY.—A survey of this proposed railway has been ordered in view of the application of the French minister for permission to construct the line.

DAIREN-LACHUTAN BEACH RAILWAY—A company with a capital of yen 50,000 is proposed to build a line connecting these two points.

SOUTH MANCHURIA RAILWAY DEBENTURES.—It is proposed to issue debentures to the value of yen 40,000,000 at an early date. Out of the yen 80,000,000 issued yen 60,000,000 have been expended and the balance is being utilized in the reconstruction of the Antung-Mukden Railway. By Imperial Ordinance the company is authorized to issue debentures to twice the amount of paid up shares which enables it to issue additional debentures to the amount of yen 124,000,000.

THE CHINCHOW-AIGUN RAILWAY.—The latest advices are that the proposal made by Viceroy Hsi Liang to build a railway from Aigun on the Amur River to Kinchow on the Liaotung Gulf has been approved. The line will be 750 miles in length and extend across Manchuria. The concession is to an American company and the construction of the line will be sublet to Messrs. Pauling & Co., a British firm. The line as proposed will cross the Chinese Eastern at Tsitsihar, west of Harbin, and the Southern terminus will be a station on the Peking-Mukden line. There has been much controversy in connection with this concession, but there now seems little doubt but that it will be realized. The cost is estimated at $40,000,000.

SHANGHAI-NANKING RAILWAY SHANGHAI HOSPITAL.—This commodious and modern building erected for the use of railway employes only was formally opened January 21st. It is situated at 132 Range Road convenient to the railway station. It is a four-story building containing native and foreign wards, dispensary, matron's quarters, nurses' quarters, and is equipped throughout with bathrooms, dressing rooms, operating room, laundry, etc. Beside this hospital there is one each at Chinkiang, Quinsan and Soochow. Among those present at the opening who made addresses were Dr. Ziervogel, Chief Medical Officer of the Railway, General Manager A. W. U. Pope, and H. E. Taotai Chung Mung-yew.

THE SHANGHAI-HANGCHOW NINGPO RAILWAY.—There is a movement on foot to amalgamate this line with the Shanghai-Nanking Railway. This scheme is said to have the support of a large number of shareholders of the company.

KOREAN RAILWAY CONSTRUCTION.—The new two storey railway station at Fusan is to be opened this month. It is built of brick and is one of the finest buildings of its kind in Korea.

RAILWAY MATERIALS DUTY FREE.—Imperial sanction has been given to exempt from duty all materials for the construction of the Kirin-Kuangchengtze and the Kalgan-Suijuan Railways for a period of three years.

RUSSIAN PROJECT IN MANCHURIA.—This proposed line is to connect Hailing on the Harbin-Mikolisk Railway and Alasdoria, a point about halfway between Vladivostok and Nikolisk. It would run through Manchuria from Hailing to Hungchun. From Hunchun it would proceed to Possiet Bay and from there north to the terminus.

RAILWAY TO CONNECT CEYLON AND INDIA.—Sanction has been secured to extend the South India Railway by building a viaduct across the Pamban Channel, the railhead pushed to Daneshkidi and from there a ferry service to connect with the Ceylon extension.

RAILWAY PROGRAM IN KOREA.—The Chief of the Railway Bureau in Korea has in view the construction of two new railways, one from Tajon to Mokpoo and the other from Gensan to Seoul. The sum of 15,000,000 yen has been appropriated for the former and 16,000,000 yen for the latter. The Diet has been asked for an additional appropriation of 40,000,000 yen to be spent in the next eleven years in railway construction in Korea.

PEKIN-KALGAN EXTENSION.—It has been decided to extend this line to Swe Yuan Cheng and the sum of Tls. 17,560,000 will be made available for this work from the surplus earnings of the Imperial Railways of North China.

SOUTH MANCHURIA FREIGHT TRAFFIC.—The total freight earnings for the month of December amounted to yen 1,600,000, an increase over the estimate of over 20,000.

ANTUNG-MUKDEN LAND PURCHASE.—It is estimated that over yen 1,000,000 will be expended in acquiring lands for the right of way and stations.

BURMA RAILWAYS.—The receipts for the half year ended December 31st amounted to Rs. 79,34,832, an increase of Rs. 1,01,391 over the receipts for the corresponding period 1908. A new railway school is to be instituted at Yamethin.

NANKING CITY RAILWAY SOLD.—Taotai Chang, a wealthy Chinese of Kiangning, has purchased the system for the sum of Tls. 450,000. This transfer was necessary in order to meet the loan obligations due last month.

INDIAN RAILWAYS.—The receipts for the nine months ended December 31st amounted to Rs. 30,87,25,000 which is an increase of Rs. 1,66,-38,130 over the corresponding nine months of the previous year.

KOWLOON-CANTON RAILWAY.—The latest word on the line is to the effect that 30 miles on the Chinese section outward from Canton will be open for traffic in March and that a through connection with Kowloon will be effected by July 1st.

ROLLING STOCK FOR THE SIAMESE ROYAL RAILWAYS.—The new workshops on the Petriu line are being utilized to erect the cars which are built of teak, the axles, framework, etc., being imported from Europe. Recently nine locomotives, three passenger, two freight and four tank, were purchased in Germany. Also

a shipment received from Europe of five composite first and second class coaches, five composite guards van and third class bogie carriages has been delivered to the Northern line according to the *Siam Times*.

THE JAPANESE RAILWAY ESTIMATES.—In referring to the budget of the Railway Board Baron Goto said that the annual revenue of the board during the present fiscal year is 90 million *yen* and the expenditure about 80 million *yen*, leaving a profit af 8,800,000 *yen*, of which 500,000 *yen* is placed to reserve, so that the net profit is 8,300,000 *yen*. As to the Korean railways, their annual expenditure amounts to 5,600,000 *yen* and revenue to 5,300,000 *yen*, showing a net profit of 300,000 yen. About 5,500,000 *yen* is to be paid out for the construction of railways in Korea.

INDIAN RAILWAY OPERATION.—The ratio of working expenses to gross earnings are as follows: Indian Midland Railway, half-year, 56.08%; Bengal-Nagpur Railroad, half year, 51.18%; South Indian Railway Company, half year, 50.76%; Assam-Bengal Railway, half year, 92.07%.

CHINA'S OUTSTANDING DEBTS

The Tientsin *Times* gives the following list of loans contracted since 1885 with the amounts outstanding:

Date. GENERAL LOANS

1886 Jardine, Matheson & Co., £115,000 7 per cent. £48,000 outstanding.

1894 H'kong and S'hai Bank, £1,635,000 7 per cent. £817,500 outstanding.

1895 Arnhold, Karberg and Co., Ninking, £1,000,000 6 per cent. £466,700 outstanding.

1895 Through Chartered Bank, £1,000,000 6 per cent. £466,700 outstanding.

1895 H'kong and S'hai Bank, £3,000,000 6 per cent. £1,200,000 outstanding.

SINO-JAPANESE WAR

1895 Franco-Russian Government Loan, £15-820,000 4 per cent. £12,427,418 outstanding.

1896 English and German Government, £16,-000,000 4 per cent. £13,342,625 outstanding.

1898 English and German Government, £16,-000,000 4½ per cent. £14,584,000 outstanding.

BOXER INDEMNITY

1901 A. £11,250,000 4 per cent. £10,267,254
1901 B. £ 9,000,000 4 per cent. £ 9,000,000
1901 C. £22, 500,000 4 per cent. £22,500,000
1901 D. £ 7,500,000 4 per cent. £ 7,500,000
1901 E. £17,250,000 4 per cent. £17,250,000
1905 Special Loan, £1,000,000 5 per cent. £483,333.
1905 H. and S. Bank, £500,000,000 5 per cent.

RAILWAY LOANS

1898 British Loan, I.R.N.C. £2,300,000 5½ per cent. £2,070,000 outstanding.

1896 Russo-Chinese Loan for Chinese Eastern Railway T. 5,000,000 6½ per cent. T. 5,000,000 outstanding.

1898 Belgian Loan for Peking-Hankow Railway, £400,000 5½ per cent. £400,000 outstanding.

1898 Russo-Chinese Chin Tai Railway Loan, Fcs. 40,000,000 5½ per cent. Fcs. 40,-000,000 outstanding.

1904 Belgian Kaifung-Honan Railway Loan, Fcs. 25,000,000 5½ per cent. Fcs. 25,-000,000 outstanding.

1904-6 British Loan Shanghai, Nanking Loan £2,900,000 5½ per cent. £2,900,000 outstanding.

1905 Peking Syndicate Taokow Cheng Hwa £700,000 5½ per cent. Paid 1908, outstanding.

1907 Japanese Government Loan Kirin Chang Chun, Y800,000 5½ per cent. Y800,000 outstanding.

1907 British Loan Kiukiang Railway, £1,-500,000 5½ per cent. £1,000,000 outstanding.

1907 British Loan Canton-Hankow Railway, £1,000,000 5½ per cent. £1,000,000 outstanding.

1907 British Loan Shanghai-Hanchow and Ning-po Railway, £1,500,000 5½ per cent. £1,500,000 outstanding.

1909 Deutsch-Asiatische Bank Tientsin-Pukow Railway, £4,000,000 5½ per cent. £4,000,000 outstanding.

Total outstanding, £136,223,590.

CONTRACTING NEWS

BIDS OPENED, ROYAL SOUTHERN RAILWAY OF SIAM—Five tank engines and 130 steel ballast cars.—Engine Tenders:—

Société Anonyme Franco Belge, Raismes	£6,452
Manning Wardle, agents Howarth Erskine Ltd., Bangkok	8,330
Henschel & Sohn, Cassel,	5,030- 3-6
Arn Jung, Jugenthal b Kirchen	4,975
Hannoversche Maschinenbau Actien Gessellschaft, Hannover Linden	4,915-18-3
Deutsch Siamesische Handelsgessellschaft, Bangkok	4,775
Locomotivfabrik Krauss and Co. Actien gessellschaft, Munchen	4,630
North British Locomotive Co., Ltd., Glasgow	6,963
R. and W. Hamthorn Leslie and Co., Newcastle on Tyne	5,845-1
Maschinenbau Anstalt "Humboldt," Kalk bei Keln a Rhein	5,385
Beyer Peacock and Co., Manchester	7,400
Hohenzollern Actiengessellschaft fur Lokomotivbau, Dusseldorf, Grafenberg	5,400-6-3
Berlinner Maschinenbau Actien Gessellschaft vormals L. Schwartzkopff, Berlin	4,648-11
Usines Metallurgiques du Hainaut Société Anonyme à Couillet	5,278-19
Brush Electrical Engineering Co., London, Breslauer Actien Gessellschaft, fur	5,698
Eisenbahn Wagenbau und Maschinenbau, Anstalt, Breslau	4,851-16
Maschinenfabrik Eslingen in Esslingen	6,465
Société Anonyme des Ateliers Metallurgiques, Paris	5,698
W. G. Bagnall & Co., Stafford	8,524
A. Borsig, Berlin Tegel, per Windsor & Co.	4,465-10
Direction der osterreichischen werk und fabriken, Wien	4,830
Ateliers de construction de la Biesme and Bouffioulx, per Société Anonyme Belge	5,626
Compagnie de Fives-Lille, per E. C. Monod et fils Bangkok	9,808
Steel Bros. & Co. Ltd., Siam, (Lima Loco and Machine Co., Ohio)	7,120
Robert Stephenson & Co. Ltd., Darlington, per the Borneo Co. Ltd., Bangkok	7,413
B. Grimm & Co., Bangkok, (Henschel and Sohn, Cassel)	5,030-3-6
John Cockerill, Seraing, per G. Kluzer & Co., Bangkok	6,228
Orenstein and Koppel, per East Asiatic Co. Ltd	6,428-10
Dick Kerr and Co., per Samson Dock and Engineering Co.	7,160
Mitsui Bussan Kaisha	7,892-8-10
Avonside Engine Works, per Mr. J. M. Dunlop	7,216
Kerr Stuart and Co., London, ,, ,,	8,320
Kitson and Co., Leeds, ,, ,,	8,400
Nasmyth-Wilson Co., Manchester, ,, ,,	7,932
Soc. Anonyme de Construction des Ateliers Metallurgiques, Brussels, per Mr. J. M. Dunlop	6,174-8-6
Barclay, Kilmarnock, per Bangkok Dock Co. Ltd	7,385
Diethelm and Co. Ltd., Bangkok	7,010
Establishments Piguet and Co., per Comptoir Francais du Siam	9,160
S. A. B. for Desforges à Haines St. Pierre	6,446-10
Baldwin Co. (per Edwards and Co.)	6,076
Société St. Leonard, Liege	5,420

STEEL BALLAST CARS

Gessellschaft Harkort, Duisburg, Germany	13,034-5
Société Anonyme de Travaux, Dyle & Balacan, Paris	12,550
Midland Railway Carriage and Wagon Co. England, per Howarth Erskine Ltd., Bangkok	12,238-14-8
Jules Weitz, Lyon	8,010-16
J. Goossens, Aachen	7,458-6
The Metropolitan Amalgamated Railway Carriage and Wagon Co. Ltd., Saltley	13,226-8
C. Bulmhardt Vohwinkel Simonshaus, Vohwinkel	10,232-18
Both and Tilmann, Dortmund	8,755
Gottfried Lindner, Halle	10,560-9
Société Anonyme des Ateliers de Construction Hal., Belgium	11,512-1
Fritz Bothmann and Gluck, Gotha	17,341-19
L. I. Enthoven and Cie Pletterij, Delft	11,174-4-1
Action-gessellschaft, Weimat	10,726-4-6
Hungarian Ry. Carriage and Machine Works, per Alois Schweiger and Co., Ltd., Bangkok	10,706-16
Dusseldorfer Eisenbahnbedorf vormals Carl Weyer and Co., Dusseldorf-Oberbilk	12,883-18-10
Waggonfabrik Act-ges vorm P. Herbrand and Cie., Kehr Ehrenfeld	11,811
Canon-Legrand, Mons	10,981-3
La Brugeoise Saint Michel lez Bruges	10,371-1
Nord de la France et Nicaise & Delcuve per Howarth Erskine Ltd	9,228
S. J. Claye, Long Eaton	12,154-2-6
Brush Electrical Engineering Co., London	9,606
L'Industrie de Lavaine	9,808-9
Nesselsdorfer Waggonfabrik Export, 7 Ringhoffer Smichow, Wien, per B. Grimm and Co.	9,172
Baume & Marpent Usines et Fonderies Haine-Saint-Pierre, Belgium, per G. Kluzer and Co., Bangkok	10,208
P. and W. Maclellan Ltd., Glasgow	16,966
Hannoversehewagonfabrik, Hannover Linden	15,397-8
Orenstein and Koppel, per East Asiatic Co. Ltd	8,076-7-3
Van der Sypen & Charlier, Coln Deitz, Germany, per Windsor & Co. (Wood wagons £876-4-5 extra for crucible steel tyres)	8,223-7-10
Dick Kerr and Co. per Samsen Dock & Engineering Co	16,705
Maschinenfabrik A. G. Augsburg, Nurnberg, per Behn, Meyer & Co. Ltd., Bangkok	15,353
Mitsui Bussan Kaisha	12,179-13-7
Société Anonyme Metallurgique La Nervienne Marcinelle, per A. Diana & Co	10,940
Kerr Stuart & Co., London, per Mr. J. M. Dunlop	16,190-2-6
Leeds Forge Co., per Mr. J. M. Dunlop	24,447
Hurst Nelson & Co., Motherwell	11,908-10
Eisenwerk Gustav Trelenberg, Breslau Grabshen	14,598-9-1
Establishments Arbel., Paris, per Comptoir Francais du Siam	11,389-5-4
Gloucester Wagon Co., per Denny Mott and Dickson Ltd	17,432-8
Usines Braines le Comte, agent S. A. B	9,750
Nederlandsche Fabrick van Werktingen en Spoorweg Materiel, Amsterdam	13,057-5
Société anonyme des Ateliers Metallurgiques, Paris	9,307-10

CONTRACT AWARDED.—Bureau of Philippine Constabulary.—10,000 pairs of shoes. Awarded Messrs. Erlanger & Galinger, Manila.—Price ₱6.874 a pair.

PROPOSALS INVITED.—SHANGHAI MUNICIPALITY.—17,500 tons of small nut coal—bids open February 19th, 1910.

CONTRACT AWARDED.—Singapore Municipality.—Installing gravitation main and filters $154,910.

BIDS OPENED.—Municipality of Penang.—*Quarters for Engineer, Electric Power Station.*—Chin Ah Chin—$5,927, Chin Ah Thoon—$9,-689.20, Yong Hong Thoy—$8,145, Ng Ah Heang $7,800, Chi Ah Kong—$7,069.93, Chin Ah Chin—$6,750, Yoong Loon Swee—$7,500, Moey Ah Thieu—$67,500, and Lee Ah Cheang.—$6,494. *Quarters for Superintendent of Abattoirs.* Chin Ah Thoon—$5,800, Yong Hong Thoy—$6,100, Noah Ah Heang—$6,200, Chi Ah Kong—$7,289.07, Lee Ah Cheang—$5,890, Lee Hong Tuck—$6,275.18, and Tan Yew Koon—$7,474.

PROPOSALS INVITED.—Frozen fresh beef and mutton.—Headquarters Philippines Division, Office Chief Commissary, Manila, P. I., January 3, 1910.—Sealed proposals, in triplicate, subject to usual conditions, will be received at this office until 11 o'clock a. m., April 5, 1910, at which time and place they will be opened in the presence of attending bidders, for furnishing and delivering about six million six hundred thousand (6,600,000) pounds of frozen fresh beef and two hundred thousand (200,000) pounds of frozen fresh mutton to the Subsistence Department, U. S. Army, at Manila, P. I., during year ending June 30, 1911. The contractor will be required to pay all customs duties. The United States reserves the right to decrease the amount advertised for, upon reasonable notice to the contractor, or to increase the amount with his consent. Each proposal must be accompanied with a bidder's guaranty in the amount of $20,000 or with certified check for that sum on a bank of approved standing in Manila. The bidder to whom the contract is awarded will be required to give bond. Blanks and full information furnished on application to this office or to the nearest United States consul. Envelopes containing proposals must be marked: "Proposals for frozen fresh beef and mutton for fiscal year 1911, to be opened April 5, 1910," and addressed to the undersigned.—D. L. BRAINARD, Lieut. Col., D. C. G., U. S. Army, Chief Commissary.

PROPOSALS INVITED.—Bangkok Sanitary Department.—5,445 tons of cast-iron water pipes and accessories opened April 15, 1910.

PROPOSALS FOR COAL:—Headquarters Philippines Division, Office of Chief Quartermaster, Manila, December 13th, 1909. Sealed proposals, in triplicate, subject to usual conditions, for furnishing approximately 65,000 tons of coal to the Quartermaster Department, U. S. Army, during the Fiscal Year 1911, will be received here until 10:00 a. m. May 16th, 1910, and then opened. Information and blank forms furnished on application. F. G. Hodgson, Deputy Quartermaster General, U. S. A., Chief Quartermaster.

PROPOSALS INVITED.—Bureau of Supply, Manila—Hardware, steel, stationery, etc., including 24 fire extinguishers, 2500 kilos round commercial five-eighths inch iron; 400 kegs nails; 5,000 meters standard 2" pipe; 100 kilos rivets; 3,000 shovels; 2,500 kilos, etc., crucible and octagonal steel; 20 boxes paper; 200 gross pencils, etc., opened March 7th, 1910.

MANILA GOVERNMENT PIERS

The first freight steamer to utilize the new Government Piers at Manila was the Verona of the Hamburg-America line with 4,000 tons to discharge. The venture was a success and indicates an unusual saving to the port when the plans of the government for the handling of cargo is complete. It is estimated that among the small importers alone a saving of at least ₱375,000 will be made annually. At the present time it costs approximately ₱6 a ton to discharge cargo and place it in the bodegas while under the new wharf regulations the cost will not exceed ₱3.50. Cargo received annually in the port of Manila averages about 400,000 tons, of which about 150,000 tons are invoiced to small importers. The large importers, fully equipped to take ship side delivery by means of lighters, will not for the present find much advantage, but with more effective means of transportation from the port to the bodegas as is proposed, a great reduction and saving is anticipated.

In connection with the operation of the Government Piers, the Collector of Customs at Manila has issued the following regulations which will prove of interest to the shipping trade:

"Par. I.—The government piers at the Port of Manila shall be operated by a Division of Piers and in conjunction with the Arrastre plant, and shall be under the general supervision of the Deputy Surveyor of Customs. The personnel of the Division of Piers shall be fixed from time to time by the Insular Collector of Customs with the approval of the Secretary of Finance and Justice. The expense of the operation of the government piers, including salaries, wages, materials and incidental expenses, shall be paid from the sums received from vessels as pier charges, and from the receipts from the sale of water on said piers, subject to the approval of the Insular Collector of Customs, and in accordance with Section 6 of Act No. 1955 of the Philippine legislature.

"Par. II.—A vessel going alongside a pier shall take such berth as designated by the wharfinger and must be berthed and secured by a pilot or master in charge of the vessel. All responsibility for insecure or improper mooring and for all consequences arising therefrom shall lie with the vessel. All vessels shall use rat funnels on their cables and ropes connecting with a pier or the shore.

"Par. III.—A vessel about to leave its berth at a pier shall give due notice to the wharfinger that he may provide attendance to let go ropes and moorings.

"Par. IV.—The regular working hours for the Arrastre plant and the Division of Piers for discharging or loading vessels at a pier shall be from 7 A. M. to 12 A. M. and from 1 P. M. to 5 P. M. daily, except Sundays and legal holidays. Overtime hours for night work shall be from 6 P. M. until 12 midnight and from 12:30 A. M. until 6 A. M. All work performed on Sundays or legal holidays shall be overtime work.

"Par. V.—A vessel desiring to work at night, on Sunday or on a legal holiday, shall take out the required customs permit and shall give at least a half day's notice in advance to the wharfinger in order that proper arrangements may be made therefor.

"Par. VI.—When delivery of imported merchandise is taken from a pier, the laborers for loading carts or other vehicles, or for loading into lighters or cascos, shall be furnished by the Arrastre plant. No other laborers shall be permitted on the piers.

"Par. VII.—A half day's notice in advance shall be given to the wharfinger when delivery of imported merchandise is desired.

"Par. VIII.—Imported merchandise which is not delivered in six days after the completion of the discharge of the carrying vessel, Sundays and legal holidays excepted, may be removed from the pier to the Custom House wharf in case there is lack of storage space on the pier. An additional charge of ₱2.00 per ton shall be made by the Arrastre plant on such merchandise.

"Par. IX.—Inflammable merchandise shall only be landed on a pier by special permission of the wharfinger and when so landed shall be immediately removed therefrom. No coal-oil, gasoline, dynamite, gunpowder or other explosives shall be landed on a pier.

"Par. X.—Shipside delivery shall be given only to large shipments consigned to the United States Army or Navy and to shipments of bulk cargo when so stowed as to not interfere with the rapid discharge of the carrying vessel.

"Par. XI.—The stevedoring of vessels discharging or loading at a pier will be performed as heretofore by stevedores employed by ships' agents or masters. The stevedore shall deposit discharged cargo on the pier at a doorway, where charge thereof will be taken by the Arrastre plant. Merchandise to be loaded on a vessel from a pier shall be delivered to the stevedore at a doorway opposite the hatch. The stevedore or ship's officer shall give due notice in advance as to the number of hatches and cranes to be worked and the character of cargo.

"Par. XII.—The delivery of merhandise to the importer from the piers shall be made under present Customs and Arrastre regulations the same as heretofore from the Customs wharf, with the exception of laborers as provided in Paragraph VI. The same permits and other papers shall be required as heretofore.

"Par. XIII.—The same Customs and Arrastre plant regulations shall govern imported merchandise landed on the piers as governs merchandise landed at the Custom House.

"Par. XIV.—If it is desired to load merchandise on a vessel from a pier, such merchandise shall be brought to the pier as near to the time of loading as possible. The unloading of carts and other handling of such merchandise on a pier shall be done by the Arrastre plant.

"Par. XV.—Every vessel coming to a pier shall pay a pier charge of one centavo per gross ton per twenty-four hours or for any part thereof, exceeding six hours. Such charge shall be paid to the Customs cashier, or guaranteed by the agent, before the clearance of the vessel, and shall be deposited by the cashier in a special fund as 'receipts from the operation of government piers.'

"Par. XVI.—Vessels shall leave the pier as soon as the discharge or lading of cargo is finished. Any vessel, failing to leave the pier after the master thereof has received notice to leave from the wharfinger, shall be liable to an additional charge of one centavo per gross ton for each succeeding twenty-four hours or part thereof, exceeding six hours, in the discretion of the Insular Collector of Customs.

"Par. XVII.—Any vessel from a foreign port, going to a pier for the purpose solely of landing or taking on passengers and their baggage, shall be exempt for the first twelve hours for the pier charges above specified. For each succeeding twenty-four hours or any part thereof, exceeding six hours, the vessel shall pay the pier charges provided by Paragraph XV of these regulations.

"Par. XVIII.—Coastwise vessels going to a pier for the purpose of loading transit cargo shall be exempt from payment of pier charges for the first twelve hours. After that time they shall be subject to a pier charge of one half of one centavo per gross ton for each twenty-four hours, or part thereof.

"Par. XIX.—Merchandise brought to a pier for shipment and not loaded on a vessel within forty-eight hours, shall thereafter pay storage charges up to the hour of lading at the rate of ten centavos per ton for each twenty-four hours or part thereof. Any merchandise sent to a pier for shipment and not loaded on the exporting vessel for which it was intended must be removed from the pier within forty-eight hours after the departure of said vessel, and if not so removed, shall be liable to a storage charge of twenty centavos per ton for each twenty-four hours or part thereof or may be removed from the pier by the Arrastre plant at the expense of the owner or consignor.

"Par. XX.—Incoming or outgoing baggage of passengers, not personally carried by them, will be handled on the pier by the Arrastre plant without charge.

"*Arrastre Charges.*—Par. XXI.—The following charges shall be collected by the Arrastre plant on all merchandise handled by it at a pier:

"Imported merchandise for examination and delivery at the Port of Manila ₱0.90 per ton, in accordance with present Arrastre regulations.

"Horses, cattle and like animals, ₱0.30 per head; pigs, sheep, goats and like animals, ₱0.10 per head. (All animals must be immediately removed from the pier.)

"Expert cargo ₱0.30 per ton.

"Transit cargo for shipment to another port of entry in the Philippine Islands ₱0.50 per ton.

"*Storage Charges.*—Par. XXII.—All imported merchandise, with the exception of transit cargo, shall pay storage at the same rate as is provided for the storage of merchandise in regular Customs warehouses. No storage charges shall accrue on transit cargo for shipment to another port of entry in the Philippine Islands up to and including the sailing date of the first coastwise vessel clearing for the port of destination, provided, however, that such period shall in no case exceed fifteen days from the date of clearance of the importing vessel. In any case, where storage accrues on transit cargo, the same shall be collected at the rate of seven centavos per ton per day.

"*Water Rates.*—Par. XXIII.—Fresh water shall be furnished to vessels desiring to take the same at the rate of twenty centavos per ton. Receipts from this source shall be deposited by the Cashier as "Receipts from operation of Government piers."

"*Government Vessels.*—Par. XXIV.—Vessels of the United States or of the Government of the Philippine Islands shall be permitted to use the pier when there is a berth available therefor, provided they shall first obtain from the Deputy Surveyor of Customs the required permit. No pier charge shall first obtain from the Deputy Surveyor of Customs the required permit. No pier charge shall be made against a Government vessel using the piers as above provided.

"Par. XXV.—The provisions of this Order shall take effect January 15, 1910."

DECEMBER RUBBER RETURNS

	lb.
Anglo Malay	53,489
Balgownie	7,384
Bertam	13,500
Highlands & Lowlands	46,078
Inch Kenneth	11,908
Kamuning	6,062
Kuala Lumpur	46,201
Lanadron	24,420
Ledbury	8,270
Linggi	59,000
London Asiatic	10,076
Malacca Plantations	29,000
Pataling	2,195
Sandycroft	11,063
Singapore & Johore	7,100
Singapore Para	5,000
Valambrosa	39,000

* Fraser & Co.

DECEMBER TIN RETURNS*

	Piculs.
Belat	425
Bruang	174
Bruseh	221
Gopeng	600
Kanaboi	464
Kinta	500
Kuantan	60
Lahat	641
New Gopeng	200
Pahang Consolidated	1,000
Pengkalen	500
Pusing Bharu	773
Pusing Lama	557
Rambutan	475
Redhills	356
Royal Johore	71
Salak South	138
Sempam	21
Serendah	465
Sipiau	128
Tekka	800
Tronoh	4,455

* Fraser & Co.

ELECTRIC RAILWAYS, POWER, LIGHT, TELEGRAPH, TELEPHONES, AIRSHIPS, ETC.

Tramway Company's Property in Japan.—The following property may be held by a tramway corporation or trust:

(1) The tramway line, the land used for the line, structures standing on the same, and plant and machinery; (2) workshops, godowns, stables, electric motor houses, electric generating houses, business offices, official quarters, and other works or buildings, and land required for the traffic, and implements and machinery attached thereto; (3) the structures necessary for water supply, the land used therefor, and implements and machinery attached thereto; (4) structures required for communication, signaling, and generation of electric current, the land used therefor, and implements and machinery appertaining thereto; (5) superficies created on real property owned by others for the purpose of holding or using the structures specified in the foregoing four paragraphs, and registered leases and servitudes created on the land specified in the foregoing four paragraphs; (6) carriages, horses, implements, and machinery appertaining thereto; (7) materials, implements, and machinery required for the maintenance of the tramway lines and the repair of other works.

Wireless for Hongkong.—At the annual meeting of the General Chamber of Commerce the Hon. E. A. Hewitt, chairman, referred to the necessity of a wireless station at that port and said in part:

"The advisability, I may say, the absolute necessity, for a properly equipped station in the Colony must be apparent to us all. Such a station should, I consider, have a range of at least 1,500 miles. This would enable us to communicate direct with Singapore, Kobe, Calcutta, the Philippines and other points in the East which are in direct tradal connection with Hongkong. While it is not the province of the Chamber of Commerce to push the interests of any individual business concern, it appears that we should no longer be dependent upon H. M. service for our wireless station, but that one should be erected independently of the Navy and in order to make this thoroughly efficient and self-supporting it should be conducted as a commercial undertaking and not as a Government concern. Of course the usual conditions would have to be imposed to preserve sovereign rights and control in time of war.

Aviation in Ceylon.—Mr. Sands, one of M. Latham's first pupils, has offered to make monoplane exhibition flights in the islands for a guarantee of £5,000.

Calcutta Biplane Invention.—A successful trial of a biplane invented by a Punjabi took place in Calcutta recently.

Aeroplanes in Bangkok.—Trials of the Blériot monoplane took place on the Sports Club race course last month and worked out satisfactorily. An aviation meeting is being urged.

Siamese Tramway Company.—An extraordinary meeting of the shareholders of this company was held last month at which the following resolution was adopted:

"That the Directors of the Company be authorised to redeem, in such instalments and at such periods as they shall deem fit, the 8% debentures issued by the Company, beginning from the highest serial number and proceeding serially to lower numbers; giving the holders at least two months' notice from date of posting by registered mail and offering them the option of payment in cash or instead 6½% debentures; and that the directors be authorised to issue debentures class B of Tcs. 100 each or Class C of £10 each; to bear interest at the rate of 6½% per annum payable on the 30th June and 31st December of each year and redeemable at the option of the Company not before six years from issue and not later than 10 years from date of issue. The total issue of debentures by the Company not to exceed at any time Tcs. 725,000."

The conversion of debentures and the saving of Ticals 10,000 on power by a new arrangement with the Siam Electricity Company is estimated to be equal to 3% on capital.

Japanese Electrical Enterprise.—The *Yorodzu Choho* in reviewing the progress of electric enterprise in Japan says that seventeen electric light concerns and eight electric railways were opened, the former representing 50,000 kilowats supplying 290,000 lights and the latter representing 80,000 h. p., operating 160 miles of railway during the year just ended. This means an increase of 50% compared with 1908 and it is expected that increase for 1910 will reach 70%. The program includes the hydro-electric project to harness the Shinanogawa and supply power to the railway crossing the Usui-toge.

There is also a report to the effect that an application has been filed by Baron Chisaka and others for a charter to organize a company with a capital of yen 8,000,000 to harness the river Tone and supply light to Tokyo at sen 75 a light instead of Yen 1.20 now being charged. The promoters also promise to install all the wires underground.

It is estimated by one exchange that there are 27 electric projects afoot for the year including those increasing their capital and operations. The Odawara Electric Railway Co. has increased its capital by yen 1,320,000 and will extend its present line to Goro via Miyanoshita and Owigiana to connect with the Tokaido Railway. A project is under way to construct a tramway from Temma Cho, Chita district, the terminus of the Nagoya line to Tokonama Cho, Chita district, a distance of 21 miles. A company has been formed for this purpose at Nagoya. The operation of the Yamanote Electric Railway which was opened December 16th has been most satisfactory. The daily receipts have been over yen 750 a day, an increase of yen 150 a day compared with the locomotive system. An increase in the number of stations and daily trains is under consideration.

Electrical Industries of Siam.—Vice Consul Hansen of Bangkok gives the following information regarding these enterprises:

"The light and power plant for Bangkok is furnished by the Siam Electricity Company (Limited), a Danish company. Its equipment consists of Babcock & Wilcox boilers, Brush compound B. and W. triple expansion engines, Curtis turbine, and others; Morley, G. E. C., Short, and other dynamos; Terrarie, Thompson, G. E. C., and other motors. The electric power at the consumers' terminals is 100 volts, 100 cycle, single phase. The company began operations in September, 1890, and is the only electric-supply company in Siam. It furnishes the electric power and light for the city of Bangkok, both public and private, and also supplies the electric power for the 25-mile single-track overhead-trolley system of tramways. This company represents an investment of $1,500,000, and paid a dividend last year of 12 per cent and a bonus of $1.50. The original shares were issued at about $50 each, and at last quotation were valued at about $180.

"The telegraphs are owned and operated by the Government. The telegraphs and posts are under one directorship, and the income from these two departments for the year 1906-7 was $352,381, and the expenditures $427,275 leaving a deficit of $74,894. Siam has, up to the present, no wireless telegraphy in operation.

"The Government also owns and operates the telephones. A new installation was finished this year. It is of the central-battery system, arranged on the common-battery principle, for 1,500 subscribers. The electric power, obtained from the Siam Electricity Company, is 100 volts, 100 cycle single phase, and two sets of motor generators. The rate is $5.50 monthly. The contractors for this work were a firm of Stockholm, Sweden, and, as may be seen in the foregoing table, Sweden is credited with $52,222 worth of imports of electrical goods for last year. There is a uniform duty on all electrical goods at 3 per cent ad valorem."

GENERAL ELECTRIC AND SHIBAURA WORKS AMALGAMATION.—A contract was signed in December at New York between the representatives of the two companies by which the capital of the new company will be yen 2,000,000, the property of the Shibaura Works to represent yen 1,000,000, and the General Electric will take yen 500,000 in stock for the use of patents and be represented by one director. The Tokyo Electric shareholders will be invited to participate in a portion of the rest of the stock. The contract extends over a period of ten years.

YOKOHAMA ELECTRIC COMPANY'S LOAN.—The negotiations between this company and the Mitsui Bank with regard to the flotation of loan of yen 1,500,000 have not been successful. The bank agreed to underwrite at 98 bonds carrying 6.5% per annum and to charge 2 rin commission. The company, however, insists on face value.

PHILIPPINE GOVERNMENT TELEGRAPH SCHOOL—This institution which was established in September, 1908, and has trained 146 pupils, 76 of which now hold positions in the insular service, 16 have resigned, 11 have been removed for cause and 43 are taking the course at the present time. The average student takes about six months to graduate. Students receive a small salary which cover expenses while in training. The instruction covers telegraphy, postal work, banking, registry with circuit and switchboard manipulation. This makes each graduate familiar with every department of postal and telegraph work as well as savings bank work.

BAGUIO ELECTRIC LIGHT PLANT.—The work on this installation is being pushed and will be completed by the time the exodus to the Summer Capital begins. The contractors are the Electrical Supply Company of Manila.

NEW TOKYO GAS COMPANY.—Great interest is being taken in the formation of a new gas company with a capital of Yen 10,000,000 to enter into competition with the Tokyo Gas Company which has heretofore held a monopoly in the city. The name of the company is the Chiyoda Gas Company and it has been agitated for some time.

THE SHANGHAI TRAMWAYS.—Two new trailers have been put in operation in Shanghai. They are ten bench open cars each having accommodation for seating 40 fares. They are placed in the second class and are 26 feet in length.

NEWCHWANG TELEGRAPH OFFICE.—A new office will be constructed at this point in the spring.

JAPANESE ELECTRICAL MEASUREMENT.—A bill has been introduced in the Diet providing that the unit of electric resistance will be the ohm; of current, the ampere; of pressure, the volt; and of power the watt. A penalty for fraudulent use of disqualified meters will carry the penalty of one year's imprisonment or a fine not exceeding yen 500.

U. S. NAVAL WIRELESS.—In the general plan to establish a complete system of wireless stations connecting Washington with all the dependencies a station is contemplated at Dutch Harbor, Alaska, to carry wireless to Behring Sea.

BRITISH ADMIRALTY WIRELESS.—The conference at Sydney recommended the establishment of the "All Red" Government-owned wireless scheme in the Pacific with stations in Sydney, Bay, and on New Zealand, Suva and Ocean Islands.

SOUTH MANCHURIA RAILWAY ELECTRIC WORKS.—This plant is now supplying 400 h. p. for industrial purposes at Dairen. It is distributed among the Kawasaki Dock Yard, Nisshin Bean Mill, the South Manchuria Railway Shops and a number of smaller manufacturing plants.

SZECHUAN-TIBET TELEGRAPH LINE.—Lack of funds is reported to stand in the way of the completion of this line as previously planned. The President of the Board of Posts and Communications is now endeavoring to make arrangements with the Viceroy of Szechuan to raise the necessary funds to make up the deficit.

VLADIVOSTOCK ELECTRIC RAILWAY.—It is reported that a contract has been let to a New York firm for the construction of a service in this city including electric lighting. The city guarantees a net profit on capital of 6.25% and any surplus will be divided between the company and the municipality.

ILOILO ELECTRIC LIGHT.—Under the contract with the municipality the Iloilo Electric Light Company undertakes to instal 236 lights. The city agrees to pay half the cost of installation.

ELECTRIC LIFTS IN SHANGHAI.—Messrs. Scott, Harding & Co. have installed in Shanghai during the past year eleven lifts manufactured by the well known firm of Smith, Major & Stevens Ltd. of which Messrs. Scott, Harding & Co. are agents. They also have orders for seven more lifts to be installed in the near future.

PUBLIC WORKS, WHARVES, DOCKS, BUILDINGS, ETC.

THE CHEFOO BREAKWATER.—At the meeting of the commercial interests of Chefoo it was agreed that a recommendation be made favoring the increase of wharfage dues and port dues to meet the expense of constructing a breakwater to cost approximately Tls. 1,500,000. It is estimated that the increase in dues will aggregate about Tls. 120,000 per annum. These recommendations have been forwarded to Peking..

THE CHAPEI WATERWORKS.—The site for the works has been secured and fenced and the Viceroy of Nanking has ordered the necessary machinery from the Kiangnan Arsenal. The system will be installed as soon as possible.

THE PEKING WATERWORKS.—A report from the American legation refers specially to the Peking system and says:

"The contract for the Peking waterworks was awarded to a German company at the reported price of $1,000,000. The company has finished the work in exceptionally good time, and to the general approval of both foreigners and Chinese.

"The settling tanks were furnished by the Riter-Conley Company, of Pittsburg, Pa. Patented steel mains have been used, and the Judlow Valve Manufacturing Company, of Troy, N. Y., has furnished the valves, hydrants, water gates, etc., for the system.

"The water is taken from the Shaho River, which rises in the hills west of Peking, and is an unusually clear-water stream. It passes through no villages.

"The pumping station at Sunho consists of two centrifugal pumps, with Borsig engines, having a combined capacity of about 5,000 gallons per minute. The water is first pumped into three settling tanks, each 60 feet in diameter and 16 feet deep, whence it is run into filtering pits. There are ten of these pits roofed over with concrete, with ventilating pipes; sand and gravel filters are used.

"From the pumping station the water is forced through an 18-inch main to a large reservoir at the Tung-chih-men the northeast gate of the city. This reservoir is also covered with concrete, and a recreation park will soon cover the site. From this reservoir the water is pumped by plunger pumps into a tower 180 feet high and with a capacity of 700 cubic meters, which forces the water through the mains to all parts of the city. To guard against accident it is so arranged that should anything go wrong with the tower at the Tung-chih-men, the pumps can force the water to the residences, or should the Tung-chih-men pumping station break down the pumps at Sunho fill the tower, and should both the Tung-chih-men pumps and tower become unserviceable, the Sunho station forces the water to the houses of the consumers. The pressure of the water in the tower is sufficient to force a stream from the house hydrants 120 feet high, and as there are no buildings in Peking of this height, the facilities for fighting fire have been greatly enhanced.

"A noticeable feature of this work is that at the insistence of the Chinese directors of the company the washing of sand and gravel for the filters was done by hand. A representative of the company states that one-half the cost of the hand washing would have paid for a washing machine and the work completed in one-third the time.

"The resident area to be supplied by the waterworks contains a population of about 700,000 (128,000 families), among which cholera, smallpox, typhus, and other contagious diseases have been more or less prevalent. The use of pure water, together with the benefits of the system of removal of garbage and cleansing of streets initiated by the city police department, will tend greatly to reduce, if in time not entirely to eradicate, these diseases. Peking is situated in one of the most healthful climatic zones in China, and with proper sanitary precautions should show as low a death rate as the average American and European cities.

"The waterworks are to be administered solely by Chinese. The cost of water to consumers will, it is said, be less than 40 cents per 1,000 gallons."

BANGKOK CATHEDRAL.—A new Roman Catholic Cathedral is being built in Bangkok which when completed will cost many hundreds of thousands of ticals. The foundations alone represent over Ticals 55,000.

DREDGING PORT ARTHUR HARBOR.—The dredger Kago, which has been dredging in connection with the construction of a coal pier in Port Arthur Harbor, is now in the Kawasaki Dockyard undergoing repairs. About April she will again be set to work on the work of deepening the entire harbor.

ARTESIAN WELLS IN THE PHILIPPINES.—Three new machines with a capacity of boring 2,000 feet have been in operation during the last year and the result is that many wells have been bored throughout the islands at great depth. In all there are about 360 wells in operation and in every pueblo where they have been installed the mortality rate has been greatly reduced. These machines were ordered through Messrs. Castle Bros.-Wolf & Sons.

SHIBA PARK IMPROVEMENTS.—The Tokyo City Council has appropriated the sum of yen 1,000,000 for the purpose of improving this park and preserving the shrines therein. The Tokugawa family will bear a portion of the expense.

JAPANESE FLOATING DOCK.—The Kawasaki Dockyards recently launched a large floating dock from its yards at Kobe. It was built according to patented designs of Messrs. Clarke & Stanfield, London, and cost approximately yen 250,000.

HOKKAIDO PUBLIC IMPROVEMENTS.—The sum available for the improvement of harbors, roads and bridges amounts to yen 40,000,000 to be paid off in fifteen years.

HAIPHONG FLOATING DOCK.—A large floating dock capable of accommodating a vessel of 1,500 tons is nearing completion at Haiphong. The cost will be about francs 1,000,000.

KURE NAVAL ARSENAL.—The arsenal is being enlarged by the construction of two large docks and steel works. One of the floating docks will be capable of accommodating a 20,000 ton warship. The arsenal is divided into the gun and the torpedo departments and the gunpowder laboratory. The number of employes engaged average 22,000 and the monthly pay roll approximates yen 450,000.

CUSTOM HOUSE AT PORT SWETTENHAM.—The sum of $12,000 has been appropriated for the construction of a two storey building which will be designed to house the increased force

necessary to handle the administration of the customs at this most important port.

BARIEN FREIGHT WHARVES.—With the completion of the new freight sheds which will cover 52,000 square yards in April, the total area covered by sheds will approximate 100,000 square yards.

KUALA LUMPUR WATER SUPPLY.—The new system soon to be utilized will have a capacity of 2,500,000 gallons of pure water daily.

FOOCHOW DOCKS AND ARSENAL.—The Viceroy of Fokien has recommended that, in view of the proposed increase of the Chinese navy, the docks should be extended. This matter will probably be deferred for consideration until the return of the naval commissioners.

LARGE PIER AT FUSAN STATION.—The completion of a pier 960 feet long with water alongside to accommodate vessels as large as 4,000 tons is announced for the present year. It will connect directly with the station. Besides the piers a landing place for coasting vessels is being constructed. This will greatly facilitate the handling of cargoes.

SENATE BUILDING AT PEKING.—A German firm has secured the contract for the construction of this building. The price named is Tls. 800,000.

SHIPBUILDING, MERCHANT MARINE AND FISHERIES

GREAT NORTHERN SCHEDULE.—On the next voyage of the Minnesota, she will make Manila her terminus, omitting Shanghai entirely from her itinerary and Hongkong on her homeward trip. She will make Manila via Japanese ports, then proceed to Hongkong, returning to Manila from which port she will sail for Tacoma, via Nagasaki, Kobe and Yokohama.

DAIREN FISH TRADE.—During the year the fish market at Dairen has handled over yen 350,000 worth of fish of which the greater part came from the neighboring fisheries and the ballance from Chefoho, Shimnoseki and Nagasaki.

AMERICAN YACHT IN FAR EASTERN WATERS.—The yacht Iolanda paid a visit to Singapore and Bangkok last month carrying her owner, Commodore Morton F. Planty, and a party of guests. The vessel has a speed of 17 knots. The party will continue the voyage to China and Japan.

JAPAN'S MERCHANT MARINE.—The official reports place the number of steamers at 1,650 and the tonnage about 1,200,000 while there are 4,800 sailing vessels representing a tonnage of approximately 384,000. Of the larger steamers there are two vessels of over 10,000; six of 9,-000 tons; one of 8,000 tons; twenty-one of 7,000 tons; six of 6,000; eighteen of 5,000 tons; 51 of 4,-000 tons; 106 of 3,000 tons; and 128 of 2,000 tons.

NEW VESSEL FOR THE PENANG-ALOR STAR RUN.—The S.S. Kedah, the new steamer of the Eastern Shipping Company, made its initial trip the latter part of January. A sister ship of the Kedah is also to be put on this run.

NEW JAPANESE CRUISERS.—Two armored cruisers of 8,500 tons each are to be built during the next two years. One is expected finished in 1913 and the other in 1914. They will carry 12.5 inch guns.

FLOATING FIRE ENGINE FOR HONGKONG.-This vessel was built by Messrs. W. S. Bailey & Co. and given her speed and efficiency tests early this month. The speed averaged 8.5 knots an hour and a stream of water was projected to a height of 200 feet. The vessel is 90 feet in length.

DAIREN-ANTUNG-SERVICE.—An effort is being made to secure a subsidy for the establishment of better steamship service to Antung and it is believed that the Kwangtung Government will consider the matter favorably.

EFFECT OF THE STRIKE.—It is estimated that vessels with an approximate tonnage of 142,000 were lying idle during the month of January owing to the coal strike at Newcastle.

LAUNCHING OF THE PANAMA MARU.—This vessel, which is one of the six vessels ordered by the Osaka Shosen Kaisha for the Seattle run, was launched from the Mitsu Bishi Dockyard and Engine Works, Nagasaki, January 18th. Her keel was laid in March, 1909, and she will be completed by April, 1910. The Panama is the 87th vessel of the Osaka Shosen Kaisha fleet of which one-third of her tonnage was built in Nagasaki. The vessel will have twinscrews and reciprocating engines. The dimensions, etc., of the vessel are as follows:

Length	400 feet
Breadth	51 "
Depth	326 "
Tonnage, gross	6,000
Indicated horse-power	3,900
Speed	14 knots.

THE KIYO MARU.—This new vessel, built by the Mitsu Bishi Dockyard and Engine Works, Nagasaki, for the Toyo Kisen Kaisha, started on her maiden voyage to South American ports the last of January.

RUSSIAN VOLUNTEER FLEET.—The S. S. Orel, one of the five new steamers built for the Vladivostok-Tsuruga run, has arrived and is now making the run regularly.

KOWLOON SHIPPING.—The returns for the quarter ended September 30th, 1909, contain the information that 3,536 vessels, tonnage 298,191, called at that port and 3,670 vessels, 315,300 tonnage, cleared from that port during the term. Besides these vessels there were 731 steam launches from Hongkong.

P. O. PURCHASES BLUE ANCHOR FLEET.—The Lund's Blue Anchor line, comprising six steamers with a tonnage of 38,995 plying between London and Australian ports, has been purchased by the Peninsular and Oriental Steamship Company.

DAIREN ICE BREAKER.—The Tatto Maru, 177 tons, built by the Osaka Iron Works for the South Manchuria Railway, has been put in commission.

FORMOSAN-JAPAN LINES.—The Nippon Yusen Kaisha have placed several large steamers of 6,000 tons on this line. The Osaka company has several steamers of 2000 tons and have secured the s. s. Kasado from the Naval Department for the run so as to compete with the larger vessels of the Nippon line.

CHINESE NAVAL DISPATCH BOAT.—The Kiangnan Dock and Engineering Works are constructing a dispatch boat for the Imperial Navy and expect to have it ready for Prince Tsai Hsun on his return from Europe. Four tugs have been built by this company for the conservancy works of the Taku bar and are being delivered.

JAPANESE BATTLESHIPS.—Two battleships of the Dreadnaught class having a tonnage of 20,800 are being constructed at the dockyards of Kure and Yokosuka and it is expected they will be launched by October this year.

AMOY-PHILIPPINE TRADE.—Messrs. Jardine Matheson & Co. and Messrs. Butterfield & Swire have each a vessel regularly on this line. They have also installed disinfecting plants at Amoy so that there shall be no interruption of traffic.

NEW P. & O. STEAMERS.—Orders have been placed with Messrs. Harland & Wolff and Messrs. Caird & Co. for the construction of two mail steamers of 13,000 tons register for the India, China and Australian Service. This addition will make ten vessels of the first class in this service and the tonnage will aggregate 100,000.

SAGHALIEN FISHERIES.—The Japanese have established 30 new fishing stations and are showing every encouragement to the establishment of fishing colonies for the development of the industry.

AUSTRALIAN-PHILIPPINE EXCURSION.—Arrangements have been made by the Publicity Department of the New South Wales Government for an excursion from Manila to Brisbane and ports and return for £1co. The excursionists will sail from Manila on June 13th and return about the latter part of July. Arrangements have been perfected for the entertainment of the tourists while in Australia and trips have been arranged to points of interest.

NEW PHILIPPINE STEAMSHIP.—Messrs. Ynchausti & Co. have ordered a crack 16-knot steamer in England for the Manila-Iloilo run.

CHINESE REGISTRATION OF STEAMSHIP COMPANIES.—In order to obtain a complete record of the Country's Shipping the Board of Posts and Communications have drawn up a number of provisional regulations governing the registration of all Chinese Steamship Companies. Under these regulations every such Company must be registered at the Board and obtain a permit from it before it can apply to the Customs for licences for its ships. It is stated that copies of the regulations have already been sent to the Board of Revenue, the Board of Agriculture, Industry and Commerce and the Viceroys and Governors, and that the Customs have been ordered to acquaint all concerned with the same.

U. S. SHIPPING SUBSIDY.—The bill presented to congress and endorsed by the administration is known as the Humphrey's Bill. It provides that American mail steamers on the South American, Oriental, or Australian service, of not less than 5,000 gross tonnage, with a speed of not less than 16 knots, and making voyages of 4,000 miles or upwards, shall be granted a subsidy at the rate of $4 per mile, and that the maximum total amount of the subsidy shall be the estimated revenue from the foreign mails carried. It is further provided that steamers entitled to the subsidy shall be built of iron or steel and carry not less than four 6-inch guns. The steamers must be ready for chartering by the Government in case of need, and the officers and at least half the crew must not be transferred to foreign flags without the sanction of the U. S. Secretary of the Navy.

U. S. QUATERMASTER LAUNCHES.—The six launches built by the Shanghai Dock and Engineering Company, Ltd., have been delivered.

The names of the launches are as follows: Mitchell, 90 feet in length, named after Lieutenant James Mitchell, 14th Infantry, who was killed in action on February 6, 1899; McConville, 90 feet, named after Major Edward McConville, First Idaho, killed in action near the present Fort McKinley, February 5, 1899; Ledyard, 90 feet, named after Augustus C. Ledyard, 6th Infantry, killed in action at La Carlota, Negros, December 7, 1899; Adams, 65 feet, named after Lieutenant Frank H. Adams, First South Dakota, killed in action, at Marilao, March 27, 1899; Tilly, 65 feet, named after Captain G. H. Tilly, Signal Corps, killed in action in Negros, May 27, 1899; Forby, 65 feet, named after Captain Lee Forby, First Nebraska, killed in action March 28, 1899.

MINES, MINERALS AND THE METAL TRADE

JAPANESE IRON FOUNDRY AT PENHSIHU.—Messrs. Okura & Co. propose establishing a foundry near the Penhsihu coal mine for the purpose of utilizing the fine iron ore found there. It is believed that the operation of the coal and iron mines contemplated will require a capital of approximately yen 2,000,000.

THE CHAMPION REEF GOLD COMPANY.—The yearly output of this company was 86,252 ounces of gold from 172,378 tons of ore crushed.

PHILIPPINE DIVISION OF MINES.—This division of the Bureau of Science is collecting data for its annual publication on the mineral resources of the islands. All mine owners have been requested to co-operate in the work in order to secure a comprehensive presentation of the subject.

THE PARACALE EXTENSION CLAIMS.—The boring of 110 holes on the company's placer grounds averaged over ₱1 per cubic yard. One hole ran ₱18 a cubic yard, one ₱9, and one ₱6.

FUSHUN COAL IN HARBIN.—There is a growing demand for Fushun coal in Harbin. The orders placed average about 5,000 tons a month, and it is estimated that 20,000 tons will be sold at this point during the winter.

KOREAN KEROSENE IMPORT.—England and America supplied the greater part of the import during the year. In all there were approximately 4,000,000 gallons brought into the country through Fushun and Chemulpo.

BURMA MINERAL OUTPUT.—For the year ended March 31st, 1909, the administrative report shows an output of 173,000,000 gallons of kerosene, gold 7,950 ounces, rubies 165,894 carats, sapphires, 16,390 carats, and jade and jadite, 3,367 cwt.

COAL NEAR CHINCHOU.—The Kwantung government has granted a concession to work coal deposits located about 10 miles from Chinchou. The concessionaire is a Japanese brick kiln proprietor at Choushutzu.

THE PARACALE GOLD DREDGING COMPANY.—The value of the output of this dredge for the last 18 months amounted to ₱230,000 in value, and in addition it is estimated that there are over 3,000 tons of quartz found under the surface of the ground worked valued at ₱40 per ton.

LANCHOU GOLD MINES.—A company with a capital of $2,000,000 has been formed to develop these mines, and it is reported that $400,000 are already available.

DUFF DEVELOPMENT COMPANY OUTPUT.—The output for December amounted to 909 ounces, the largest of any month in 1909.

TAYABAS OIL FIELD.—The Bahay Oil Company recently installed a ₱75,000 drilling outfit on their property in Tayabas for the purpose of developing a very promising deposit.

FUSHUN COAL SHIPMENTS.—During the month of December there were approximately 24,000 tons of coal disposed off at the Dairen Wharves. Of the total 13,000 tons went to South China and 200 tons of the Fushun lump coal were shipped to South America.

KOREAN IRON MINES.—The control of the mines at Challyong and Eunyui has passed to the Wakamatsu Iron Foundry. The development of these deposits is expected to be given marked attention by the company during the year.

IMPERIAL CHINESE GUN FACTORY.—The Army & Navy Board has recommended the establishment of an arms factory by the Government to supply all the ordnance necessary for the two branches of the service. It will probably be made the subject of a report to Prince Tsai Hsun upon his return.

PULO LAUT COAL.—The product of these mines is making headway in the markets of the Far East. The mines are located on the island of Pulo Laut, South East of Dutch Borneo. The company has been operating since 1903 and has built a tramway and docks so as to facilitate shipping. Messrs. Behn Meyer & Co. are the agents.

TONKIN COAL MINES. The total output estimated for 1909 was placed at 850,000 tons. In 1908 the output amounted to 300,000 tons.

JAPANESE COAL TRUST CONTEMPLATED.—Advices from Tokyo are to the effect that a combination of fifty colliery proprietors are preparing to combine their interests in Japan.

JAPANESE COPPER MINES.—The output of the six leading copper mines of Japan is approximately 50,000,000 pounds annually of which about 80% is exported. The manufacture of copper ware is now receiving more attention in the empire and the percentage exported is not increasing with the increase of output.

PAHANG CONSOLIDATED.—The total output of tin during the year amounted to 919 tons. The installation of a Diesel engine and pneumatic pumps is now under way and development work gives satisfactory indications for the future.

EXPORT OF PHILIPPINE COAL.—The shipment of Philippine coal from the islands was made by the East Batan Coal Company this month when the Mathilde carried a cargo of 1,700 tons to Hongkong for local consumption. It is understood that the freight rates to foreign ports are more favorable than by coastwise to Manila and export trade much more attractive for that reason.

COWIE HARBOR COAL.—The output for the month of December was 2,500 tons of which 750 tons were shipped to Sandakan.

STRAITS TRADING COMPANY SMELTING WORKS.—The report for the last half year contains the announcement that both the Penang Smelting Works and the Paulu Brani Works are now in the position to deal efficiently and economically with any increase in business. The net profits for the term amounted to $521,610.

FINANCIAL, COMMERCIAL AND MISCELLANEOUS

JAPANESE TEA SHIPMENTS.—From May to November, 1909, the shipments of tea abroad amounted to approximately 29,000,000 pounds.

INDO-CHINA RUBBER.—The area under cultivation is approximately 7,500 acres, and as local labor is short, Javanese are being imported.

PHILIPPINE TOBACCO BOUNTIES.—A Philippine executive order provides for one thousand pesos in bounty for each of the provinces of Occidental Negros, Capiz and Ilocos Norte for the encouragement of the industry. These sums will be divided into two parts, the first part being divided into three sub-divisions representing prizes of fifty, thirty and twenty per cent of the amount for competition in quality of leaf tobacco grown on areas cultivated between half a hectare and 10 hectares. The other half will be distributed likewise to planters cultivating less than half a hectare.

PHILIPPINE LUMBERING ACTIVITY.—The Insular Lumber Company recently delivered one million feet of hardwood lumber in Manila from its mills in Negros for local use. It is the purpose of the company to increase its output to over a million and one half feet monthly.

CHINESE GOVERNMENT PRINTING PLANT.—It is the purpose of the authorities to instal a plant to cost about Tls. 100,000 after the German model and a German expert will be put in charge.

CHANGCHUN HOTEL COMPLETED.—This building has been completed at a cost of yen 170,000 and is large enough to accommodate 400 guests. The hotel throughout has every modern appointment.

BANK OF FORMOSA INCREASES CAPITAL.—This institution is contemplating the advisability of increasing its capital from yen 5,000,000 to yen 10,000,000.

POPULATION OF DAIREN INCREASING.—At the end of the year 1906 the total population of Dairen was 7,900 and at the end of 1909 it reached approximately 30,000.

PHILIPPINE SALARY LIST.—There were 7,056 permanent employes in the Philippine Civil Service on January 1st, 1910, of whom 4,397 were Filipinos and 2,659 Americans. The American employes draw an average salary of ₱3,225.63 while the Filipino secures an average salary of ₱914.

GERMAN BREWERY AT PORT ARTHUR.—A German firm has completed arrangements to establish a brewery at Port Arthur to compete with the Japanese product.—It is also proposed to establish branches at Dairen and Mukden.

CHINGHO WOOLEN FACTORY.—The Chinese Government has established a woolen factory at this point on the Peking-Kalgan Railway for the purpose of manufacturing military and naval uniforms. It is also proposed to make the institution an industrial training school for the natives.

NEW RUBBER COMPANIES.—The Sempah Rubber Estates, Ltd., £80,000, shares £1, 60,000 offered; Bradwell (F. M. S.) Rubber Estate, Ltd., £90,000, shares £1, 35,000 offered; Bujong Rubber Estate, Ltd., £40,000, shares £1, 26,000 offered; The Sungei Bahru Rubber Estates, Ltd., £75,000, shares £1, 55,000 offered, Changkat Serdang Rubber Estates, Ltd., $750,000 Straits Cur., shares $10, 43,000 shares offered; Kaybee Rubber Estates, Ltd., $350,000 S. Cur., shares, $1, 123,000 privately alloted; Sedenak Rubber Estates, Ltd., £100,000, £30,000 offered.

EASTERN BANK LIMITED.—This institution has been incorporated with a capital of £1,000,000 in shares of £10, and will engage in exchange and local banking.

JAVA SUGAR INDUSTRY.—The output of 180 sugar mills in Java during the year 1909 amounted to over 20,000,000 piculs, an increase of over 100,000 piculs compared with 1908. The prospects for 1910 indicate a similar increase for the year.

F. M. S. RUBBER DEVELOPMENT.—The report for the last three years of rubber exported which shows 1,990,000 pounds for 1907; 3,193,000 for 1908 and 6,100,000 for 1909 gives a striking illustration of the rapid growth of this industry now in the most flourishing condition.

YOKOHAMA MUNICIPAL BUDGET.—The estimates for 1910-11 confine the expenditure to yen 2,140,000, of which about half is ordinary and the balance extraordinary.

UNIVERSITY AT HANKOW.—Oxford and Cambridge are furthering a project to establish this institution at the initial cost of £50,000 to be supplemented five years later by an endowment of £200,000. A public subscription has been solicited.

HONGKONG ENGINEERS' INSTITUTE.—The new premises for this society were formally opened February 4th.

BANK OF JAPAN INCREASES CAPITAL.—This institution has decided to increase its capital from yen 30,000,000 to yen 60,000,000.

DAIREN BRANCH OF SPECIE BANK.—The new quarters of the Yokohama Specie Bank were occupied in December. The building cost in the vicinity of yen 300,000.

OFFER FOR THE INSULAR CIGAR COMPANY.—An American Syndicate made an offer of $4,000,000 for the business of this company located in Manila. It is understood that the offer was declined.

CIGAR BOX FACTORY FOR MANILA.—Messrs. Bruning & Sons of Eanhoven, Holland, are contemplating the installation of a cigar box factory with a capacity of 100,000 boxes weekly. Local woods will be used, of which there is an abundance.

FOREIGN TRADE OF KOREA.—The report for 1909 shows a total in value of yen 52,909,000

of which the imports exceeded the exports by about yen 20,000,000. The export trade showed an increase of over 2,000,000 yen while the imports fell off about 4,000,000 yen.

JAPANESE MANUFACTURING PLANTS.—The census taken by the Department of Agriculture shows 178 factories operated by the government throughout Japan. Of these 44 are machine shops and 124 manufacture foods and drink. The total number of employes is approximately 123,400.

KOREA'S BUDGET.—The estimates for the year 1910 as approved by the resident general include an expenditure of yen 20,915,678, of which yen 15,395,280 is ordinary and yen 5,520,398 extraordinary expenditure. The receipts estimated include yen 14,782,839 ordinary and yen 6,132,841 extraordinary. These figures show a decrease compared with the previous year.

JAPANESE CAPITAL INVESTED IN NEW UNDERTAKINGS.—From January to the end of November 1909, there were yen 120,000,000 invested in banking, railways, manufacturing plants and other enterprises.

SIAMESE TRADE.—The total foreign trade of Japan for the year ended March 31st, 1909, amounted to approximately $65,000,000 gold. Of this $28,038,548 represented the value of the imports and $36,778,426 the exports.

JAPANESE DOMESTIC BONDS.—An issue of domestic bonds to the amount of yen 100,000,000 will be issued at yen 95 for the conversion of the four per cent. bonds.

SIAMESE-INDO-CHINA POSTAL ORDER SERVICE.—Arrangements have been made for the interchange of international money orders between the two countries. The maximum amount that may be sent in one order is fixed at francs 1,000.

CHANGE IN MESSRS. KER BOLTON & CO.—According to the *London and China Express*, Messrs. Ker, Bolton and Co., of London and Glasgow, notify that the interest of Mr. Robert Jardine in the firm and its Eastern branches terminated on Dec. 31. The business will be continued by the remaining partners, Mr. R. J. Paterson, Mr. J. W. Murray, Mr. C. S. Weir, and Mr. James Graham, in conjunction with Mr. J. M. Beattie, formerly of Manila who has been admitted a partner. Mr. R. R. Reid and Mr. J. B. Reid have been admitted partners in the Philippine branches (Ker and Co., Manila, Iloilo, and Cebu), and Mr. R. S. Menzies and Mr. T J. Taylor in the Java and Singapore branches, Pitcairn, Syme and Co., Batavia, Sourabaya, and Samarang; and Syme and Co. Singapore. Mr. H. M. March retired from the Java and Singapore branches on Dec. 31.

OLD COMPANY INCORPORATED.—Richardson, Findlay & Co., Ltd., has been incorporated with a capital of £150,000 taking over the business of Richardson and Findlay in Glasgow, Findlay Richardson and Co. in Kobé and Yokohama, and Findlay and Co. in Iloilo and Manila. The signatories are R. E. Findlay, N. A. Black, J. Reid, W. G. Crum, all of 34 West George street, Glasgow, and J. Marshall, Kobé. It is a private company. The first directors are R. E. Findlay, N. A. Black, W. G. Crum, and J. Marshall.

KYOTO SILK SPINNING COMPANY LOAN.—It is announced that this company has arranged with the Yasuda Bank at Tokyo for the raising of a loan of yen 3,000,000 at a low rate for the purpose of redeeming the old debts of the company on which a high rate of interest is being paid.

GERMINAL CIGAR FACTORY TREBLES CAPITAL.—This successful company has increased its capital from ₱500,000 to ₱1,500,000 in order to improve the facilities of the factory to meet the increasing demand for its product occasioned largely by the passage of the Payne Bill.

LONDON, ENGLAND, METAL MARKET

The following are Friday's, January 7, prices of metals:—

COPPER	£ s. d.		£ s. d.
*Tough cake and Ingot	64 10 0	..	65 00 0
*Best Selected	65 0 0	..	65 10 0
*Electrolytic	65 0 0	..	65 10 0
*Sheets and sheathing	75 0 0	..	—
*Flat bottoms	78 0 0	..	—
STANDARD †Cash	61 1 3	..	61 8 9
STANDARD †Three Months	62 0 0	..	62 2 6
*Copper tubes, seamless per lb.	0 0 8¾	..	—
*Lake	65 10 0	..	66 0 0

* Less 3½ per cent. † Net.

ALLOYS.			
BRASS: Wire	0 0 7	..	—
,, Tubes (solid drawn)	0 0 7½	..	—
,, Sheets	0 0 7½	..	—

TIN.			
English ingots, f. o. b.	147 10 0	..	148 10 0
,, bars	148 10 0	..	149 10 0
,, refined	149 10 0	..	150 10 0
Straits... Cash	149 10 0	..	149 12 6
Straits... Three months	150 12 6	..	150 17 6
Australian spot	149 10 0	..	149 15 0
Banka (in Holland) Cash	151 10 0	..	—
Banka (in Holland) Three months	151 17 6	..	—

LEAD.			
Spanish or soft foreign	13 15 0	..	13 16 3
English pig, common	13 17 6	..	14 0 0
,, L. B.	14 7 6	..	—
,, sheet and bar lead	15 7 6	..	—
,, pipe	15 17 6	..	—
English red	16 10 0	..	—
,, white	18 10 0	..	—
,, patent shot	16 15 0	..	—

SPELTER.			
Silesian ordinary brands	23 5 0	..	23 7 6
,, special brands / English Swansea	23 10 0	..	23 15 0
Sheet zinc	26 5 0	..	—

ANTIMONY.			
Antimony	27 10 0	..	31 0 0
,, Crude	13 0 0	..	13 10 0
,, Ore (basis 50%)	8 0 0	..	10 0 0

QUICKSILVER.			
Flasks, 75 lbs. warrants	9 15 0	..	—

ALUMINIUM.	Per ton.		Per ton.
98-99 per cent.	67 10 0	..	70 0 0

NICKEL.	Per ton.		Per ton.
98-99 per cent. guaranteed	167 10 0	..	171 10 0

PLATINUM.

Per oz. Troy, 120s. nominal and subject to negotiation.

SHIPMENTS OF CIGARS TO THE U. S. OF AMERICA.

DURING JANUARY 1910.

EXPORTERS	CASES	KILOS
Messrs. Castle Bros.-Wolf & Sons	441	48,369
" Compañia Gral. de Tabacos	293	34,301
" Baer Senior & Co.'s Successors	160	24,076
" Walter E. Olsen & Co	96	12,294
" Germann & Co. L'd	60	7,686 ½
" Philippine Co. Ltd	55	7,637
" J. Henrich	52	7,544
" La Germinal	46	6,811
" J. Sta. Marina, (La Insular)	21	2,158
" La Alhambra	15	1,852
" Meerkamp & Co	15	1,748
" La Minerva	13	1,642
" Chiong Yu Nam	9	1,787
" W. H. Anderson & Co	9	1,264
" Lambert & Springer	6	1,012
" La Urania	6	788
" El Oriente	6	737
" W. F. Stevenson & Co	4	619
" Haddix & King	4	604
" E. B. Morris & Co	3	247
" Sullivan & Francis	2	219
" H. W. Peabody & Co	2	135
" Smith Bell & Co. Ltd	1	56
TOTAL	1319 cases	163,586½ Kos

HEMP STATISTICS, 30th DECEMBER, 1910.

(Courtesy of C. S. NICHOLSON, *Secretary, Manila Chamber of Commerce.)*

EXPORT OF HEMP, NOVEMBER, 1909.

Date	Vessel	London	L'pool	Atlantic U.S.	Pacific East & California	Continent.	Australia	Other Pts.	Total Bales
1909	Forward:—	248,014	116,843	547,636	116,460	57,271	18,243	29,234	1,153,701
Dec. 1	Duffield			22,700			1,975		22,700
" 3	Loongsang					100			100
" 4	Rubi					250		800	1,050
" 6	Ceasar			1,600					1,600
" "	Prinz Waldemar						80		80
" 7	Taming							200	200
" 9	Indravery clude (Cebu)			29,675					29,675
" 10	Ocean Monarch	10,400	2,337			850			13,587
" "	Yuengsang					74			74
" 11	Zafiro							450	450
" "	Eastern							90	90
" 13	Kaifong (Cebu)							50	50
" 12	Kremlin	10,032	3,400			600			14,032
" 14	Tean		200			300			500
" 18	Aymerich				3,361				3,361
" "	Yawata Maru	87						131	218
" 24	Antilochus				1,500				1,500
" "	Taming	1,203	140			650		25	675
" "	Yueng Sang					344		25	369
" "	Ocean Monach	9,243	3,225			550			13,018
" "	Zafiro					550		250	800
" 27	Indrani			2,225					2,225
" "	Kumanu Maru						980		980
" 28	I. de Panay	250				200			450
	Tean					100		175	275
" 29	Kaifong	50							50
" 30	Loong Sang	3,437	363			200			4,000
		218,:13	126,368	623,836	121,321	62,039	19,303	31,430	1.265

FAR EASTERN STOCKS AND QUOTATIONS

Courtesy of Messrs. Kadoorie & Co., Hongkong, December, 1909.

STOCK.	WHEN ESTABLISHED	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	AT WORKING ACCOUNT	DATE	LAST DIVIDEND.	Approximate Yield per cent per annum at Present Quotation	CLOSING QUOTATIONS
BANKS.											
Hongkong & Shanghai Banking Corporation	1865	$15,000,000	120,000	$125	$125	g £1,500,000 s $15,250,000 i $250,000	$2,001,819	30-6-09	Interim of £2 for account 1909, @ ex. 1/9 ⅛ = $22.72	4	990 sellers £91 [—
National Bank of China, Ld.	1891	£699,475	10) 99,925	£7	£6	c £4,099 $300,000	$30,552	31-12-08	$2 (London 3/6) for 1903	....	$73 buyers
MARINE INSURANCES.											
Canton Insurance Office, Ld.	1881	$2,500,000	10,000	$250	$50	$1,560,000 j $254,583 u $302,799	Nil.	31-12-08	$10 for 1908	7	$150 sales
North China Insurance Co., Ld.	1863	£150,000	10,000	£15	£5	g £125,000 s Tls. 225,000 u Tls. 335,253 f Tls. 146,586	Tls. 207,572	30-6-09	Final of 7/6 making 15/- for 1908.	....	Tls. 113 buyers
Union Ins. Society of Canton, Ld.	1867	$3,100,000	12,400	$250	$100	s $3,000,000 g £90,000 f $192,248 j £105,249 u $682,609	$2,464,901	31-12-08	Final of $17 making $47 for 1907, and interim of $30 for account 1908	5½	$910
Yangtsze Ins. Association, Ld.	1862	$1,200,000	12,000	$100	$60	$1,000,000 j $294,405 f $199,234	$707,637	31-12-08	$12 and bonus $3 for 1907	7	$230 buyers
FIRE INSURANCES.											
China Fire Ins. Co., Ld.	1870	$2,000,000	20,000	$100	$20	$1,000,000 x $438,668 f $13,802	$375,314	31-12-08	$6 and bonus $2 for 1907	7	$118 sellers
Hongkong Fire Ins. Co., Ld.	1868	$2,000,000	8,000	$250	$50	$1,438,173	$368,711	31-12-08	$27 for 1907	7½	$365 sellers
SHIPPING.											
China & Manila Steamship Co., Ld.	1882	$750,000	1) 30,000	$25	$25		Dr $21,538	31-12-08	$1 for 1906	....	$8 sellers
Douglas Steamship Co., Ld.	1883	$1,000,000	20,000	$50	$50	$230,000 i $100,589	Nil.	30-6-09	$2½ for year ending 30-6-1908	....	$32 sellers
Hongkong, Canton & Macao Steamboat Co., Ld.	1865	$1,200,000	80,000	$15	$15	e $250,000 d. i. $617,500 f $119,267 $ 22,645	$21,170	30-6-09	Interim of $1½ for a/c 1909	7¾	$31¾ sellers
Indo-China Steam Navigation Co., Ld. (Preferred) Do. Do. (Deferred)	1882	m £600,000	2) 60,000 2) 60,000	£5	£5	i £148,891	£15,162	31-12-08	6/- for 1907 on pref. shares only at ex. 1/9 11/16, $3.154	....	$63 buyers
"Shell" Transport & Trading Co., Ld.	1898	£ 2,000,000	2,000,000	£1	£1	£720,000 i £100,000	£192,994	31-12-08	Final of 2/- for 1908 & int. of 1/- for a/c 1909	....	70/- buyers
"Star" Ferry Co., Ld.	1898 1900	$200,000	10,000 10,000	$10 $10	$10 $5	$65,000 i $48,980	$31,21	30-4-09	$1.00 50 cts. for year ended 30-4-09	4 3½	$26 $14½
REFINERIES.											
China Sugar Refining Co., Ld.	1878	$2,000,000	20,000	$100	$100	e $350,000 r $56,848	Dr. $5858	31-12-08	$5 for year ending 31-12-08	3½	160 sales & buyers
Luzon Sugar Refining Co., Ld.	1882	$700,000	7,000	$100	$100	none	Dr. $135,893	31-12-08	$3 for 1897	—	$22½ buyers
Perak Sugar Cultivation Co., Ld.	—	Tls. 350,000	7,000	Tls. 50	Tls. 50	Tls. 100,000	Tls. 6,302	31-8-09	Tls. 10 for year ending 31-8-09	....	Tls. 460 buyers
MINING.											
Chinese Engineering & Mining Co., Ld.	1901	£1,000,000	1,000,000	£1	£1	d £215,000 h £12,289	£1,435	28-2-09	Final of 1/6 making 3/- for 09	7	Tls. 17
Headwaters Mining Co.	1908	₱600,000	28) 60,000	₱10	₱10				First year		$10 buyers
Raub Australian Gold Mining Co., Ld	1892	£200,000	150,000 50,000	£1 £1	18-10 £1	£4,873	Dr. £2,191	31-3-08	No. 12 of 1/- = 48 cents	....	$5½ buyers
DOCKS, WHARVES AND GODOWNS.											
Fenwick (Geo.), & Co., Ld.	1889	$450,000	s 18,000	$25	$25	$42,986	Dr $7,421	31-12-08	$1¾ for year ending 31-12-06	....	$10
Hongkong & Kowloon Wharf & Godown Co., Ld.	1886	$3,000,000	60,000	$50	$50	$550,000 t $26,806 s $40,000	$30,102	31-12-08	Final of $1½ making $3½ for 1907	—	$61 sellers
Hongkong & Whampoa Dock Co., Ld.	1866	$2,500,000	50,000	$50	$50	i $88,442 v $221,000	$345,162	30-6-09	Interim of $1½ for account 1909	..	$52 buyers
Shanghai Dock & Engin'g Co., Ld.	1906	Tls. 5,570,000	13) 55,700	Tls. 100	Tls. 100	Tls. 1,000,000	Tls. 6,261	30-4-09	Interim of Tls. 2½ for account 1910	6¼	Tls. 82 buyers
Shanghai & Hongkew Wharf Co., Ld.	1902	Tls. 3,600,000	36,000	Tls. 100	Tls. 100	b Tls. 697,257 r Tls. 50,000 e Tls. 125,000	Tls. 6,261	31-12-08	Final of Tls. 6 making Tls. 10 for 1908	7	Tls. 125
LANDS, HOTELS AND BUILDINGS.											
Anglo-French Land Investment Co., Ld.	1906	Tls. 2,500,000	3) 25,000	Tls. 100	Tls. 100	Tls. 35,000	Tls. 4,314	29-2-09	Tls. 6 for year ending 29-2-09	5¾	Tls. 103 sales
Central Stores, Ld.	....	$751,845	16) 50,123	$15	$15	n. $1,000	$24,641	31-12-08	$1.20 on old & 60 cts. on first new issue	....	$16 buyers
Hongkong Hotel Co., Ld.	1866	$600,000 $400,000	12,000 8,000	$50 $50	$50 $25	$648,975 r $140	$19,272	30-6-09	Interim of $2.40 old and 40 cents new for a/c 1909	—	$87 buyers $57 new i. b.
Hongkong Land Investment & Agency Co., Ld.	1889	$5,000,000	50,000	$100	$100	e $250,000	$26,475	31-12-09	Final of $3½ making $7 for year ending 31-12-1909	6½	$99 sellers
Humphreys' Estate & Finance Co., Ld.	1887	$1,500,000	150,000	$10	$10	i $222,172 20) $43,261	$5,486	31-12-08	60 cents for 1908	7½	$7½ sellers
Kowloon Land & Bldg. Co., Ld.	1889	$300,000	6,000	$50	$30	none	$278	31-12-08	$1½ for 1908	5	$29 buyers
Shanghai Land Investment Co., Ld.	1888	Tls. 3,900,000	78,000	Tls. 50	Tls. 50	Tls. 1,523,045 e Tls. 300,000	Tls. 142,404	31-12-08	Interim of Tls. 3 for 1909	6¾	Tls. 117½ sellers
West Point Bldg. Co., Ld.	1889	$625,000	12,500	$50	$50	none	$1,968	31-10-09	Final of 1½ for 1909	8¾	$42½ ex div.
COTTON MILLS.											
Ewo Cotton Spinning & Weaving Co., Ld.	1895	Tls. 1,000,000	5) 20,000	Tls. 50	Tls. 50	Tls. 250,000 Tls. 40,098	Tls. 10,991	31-7-09	Tls. 11 for year ended 31-10-09	8½	Tls. 131 buyers
Hongkong Cotton Spinning, Weaving & Dyeing Co., Ld.	1901	$1,250,000	125,000	$10	$10	e $20,000	$26,297	30-7-09	50 cents for year ending 31-7-08	..	$6 sales

FAR EASTERN STOCKS AND QUOTATIONS—(Continued.)

STOCK.	When Established	CAPITAL.	No. of Shares.	Value.	Paid up.	RESERVE	At Working Account.	Date.	LAST DIVIDEND.	Approximate Yield per cent. per annum at Present Quotation.	CLOSING QUOTATIONS
International Cotton Manufacturing Co., Ld.	1895	Tls. 750,000	6) 10,000	Tls. 75	Tls. 75	Tls. 175,000	Tls. 8,372	30-9-09	Tls. 7½ for year ending 30-9-09	....	Tls. 68
Laou-kung-mow Cotton Spinning & Weaving Co., Ld.	1895	Tls. 800,000	8,000	Tls. 100	Tls. 100	none	Tls. 4,829	31-12-08	Tls. 4 for 1908	....	Tls. 76
Soy Chee Cotton Spinning Co., Ld	1895	Tls. 1,000,000	2,000	Tls. 500	Tls. 500	: Tls. 31,172	Tls. 15,911		Tls. 50 for 1906	...	Tls. 375
MISCELLANEOUS.											
Bell's Asbestos Eastern Agency, Ld.	1895	£5,377.10s	11) 8,604	12/6	12/6	£1,500	£682	31-12-08	15% for 1908	....	$10
China-Borneo Co., Ld.	1903	$720,000	8) 60,000	$12	$12	$40,000	Nil.	31-12-08	$1.20 for 1908	....	$12
China Light & Power Co., Ld. Do. do. Special Shares	1901 1907	$550,000	50,000 17) 50,000	$10 $1	$10 $1	none	$61,138	28-2-07	60 cents for year ending 28-2-06	10	$6½ buyers
China Provident Loan & Mortgage Co., Ld.	1898	a $1,250,000	7) 125,000	$10	$10	$100,000	$3,407	31-12-08	80 cents for 1908	...	$8½ ex div. buy.
Dairy Farm Co., Ld.	1896	$300,000	40,000	$7½	$6	l $10,000 $10,000	$1,850	31-7-09	$1.20 for year ending 31-7-09	8½	$16½ buyers
Green Island Cement Co., Ld.	1889	$4,000,000	400,000	$10	$10	$13,000	$3,756	31-12-09	Interim of 35 cents for account 1909	10	$7½ sales
H. Price & Co., Ld.	1907	$120,000	19) 15.000	$10	$10	$5,000	$670	31-12-08	80 cents for year ending 31-12-08	8	$12
Hongkong Electric Co., Ld.	1889	$600,000	60,000	$10	$10	none	$5,195	29-2-09	$1.00 and bonus 20 cents for year ending 29-2-09	6	$20½ buyers
Hongkong Ice Co., Ld.	1881	$125,000	5,000	$25	$25	k $150,000	$7,616	31-12-08	Interim of $2 for a/c 1909	10	$175 sellers
Hongkong Rope Manufacturing Co., Ld.	1883	$600,000	$60,000	$10	$10	$20.000	$8,790	31-12-08	Interim of $1 for a/c 1909	8½	$22½ sellers
Maatschappij tot Mijn-, Bosch- en Landbouwexploitatie in Langkat	1902	Gs. 2,500,000	25,000	Glds. 100	Glds. 100	Tls. 547,500 f Tls. 63,914 21 Tls. 547,500	Tls. 316,682	31-10-08	Final of Tls. 12½ and bonus of Tls. 7½ for 1909	8½	Tls. 1020 sales
Peak Tramways Co., Ld. Do. (New)	1907	$750,000	25,000 50,000	$10 $10	$10 $1	$20,000	$2,204	30-4-09	80 cents on fully paid shares & 8 cents on $1 paid shares for year ending 30-4-09	6 3	$13 sellers $1.30
Philippine Co., Ld.	1904	$750,000	75,000	$10	$10	none	Ps. 18.640	31-12-08	None	—	$10 buyers
Robinson Piano Co., Ltd.	1900	$200,000	22) 4,000	$50	$50	$5,000	$61,138	31-8-08	6% for ½ year ending 30.9.07	....	$50
Shanghai-Sumatra Tobacco Co., Ld.	1902	Tls. 600,000	9) 30,000	Tls. 20	Tls. 20	Tls. 24,820 w Tls. 75,000	Tls. 5,250	31-10-08	Final of Tls. 5 making Tls. 8 for 1908	4½	Tls. 152 buyers
South China Morning Post, Ld.	1903	$150,000	6,000	$25	$25	none	Dr. $56,602	31-8-08	None	—	$22½ sellers
Steam Laundry Co., Ld.	1902	$100,000	20,000	$5	$5	none	$63	31-5-09	40 cents for year ending 30-5-09	7	$4½
Union Waterboat Co., Ltd.	1905	$500,000	15) 50,000	$10	$10	none	$172	31-12-08	60 cents for year-end. 31-12-1908.	5	$10
United Asbestos Oriental Agency, Ld.	1896	$100,000	10,000	$10	$4	$46,000	$342	31-5-09	60 cents per ordinary share for year ending 31-5-09	6½	$12½ buyers
Watson (A. S.) & Co., Ld.	1886	$900,000	90,000	$10	$10	e) $300,000 $25,000	$2,613	31-12-08	Final of 30 cents making 60 cents for 1908	6½	$7 sellers
Weismann Limited	1904	$30,000	3,000	$10	$10	$12,250	$67	31-7-09	10 per cent for year endg. 31.7.08.	—	$10 sales
William Powell, Ld.	1901	$105,000	15,000	$7	$7	none	$782	30-6-09	Final of 30 cents making 80 cents for year ending June 30th 1906	....	$3 sellers
RUBBERS											
Allagar Rubber Estates, Ltd.	1909	£85,000	29) 750,000	2/-	2/-	....	....	....	....	....	5/9 buyers
Anglo-Malay Rubber Co., Ltd.	1905	£150.000	1,500,000	2/-	2/-	....	....	....	Interim of 12½% for a/c 1909	....	22/6
Balgownie Rubber Estate, Ltd.	1905 ††	$200,000	‡‡ 20,000 ††	$10 ††	$10	$7,400	$11,205	31-3-09	20% Interim for 1909	—	$142½ [S'pore]
Castlefield Rub. Ld., [fully pd.]	1906	£35,000	27) 32,650	£1	£1	none	—	—	....	....	87/6
Damansara (Selangor) Rub. Co.	1906	£110,000	25 110,000	£1	£1	nil.	£2,220	31-12-08	2/6 for 1909	—	115/-
Golconda Malay Rubber Co.	1907	£80,000	26 80,000	£1	£1	nil.	nil.	—	....	....	87/6
Highland & Lnd. Para R. Co. Do. Do. [fully paid] Do. Do. [partly paid]	1906	£310,000	=181,454 123,546	£1 £1	£1 15/-	£8,784	....	....	7½% for 1909 (interim.)	....	100/- Nominal
Kamuning (Perak) Rb. & Tin Co. do do A Shares do do B Shares	1909	£200,000	950,000 105,000	2/- £1	1/- £1	nil.	nil. 1,82	....	....	....	8/6 Nominal.
Kuala Lumpur Rubber Co., Ltd.	1906	£180,000	180,000	£1	£1	£4,000	....	....	3% for year ending 30-6-08	....	140/- buyers
Linggi Plantations, Ltd. (ord.) Do. Do. (7% pref.)	1895 Reconst	£100,000	× 900,000 10,000	2/- £1	2/- £1	....	....	....	Interim of 40% = 9d for a/c 1909.	....	37/6 Nominal
Ledbury Rubber Estates Ltd. Do. Do. (contrib.)	1908	£125,000	§§ 60,000 §§ 40,000	£1 £1	£1 7/6	....	....	....	....	....	67/- 39/6
Sagga Rubber Co. Ld.	1903	£200,000	24) 20,000	£1	£1	nil.	nil.		....	....	160/-
Sandycroft Rubber Co.	1904	$100,000	50,000	$2	$2	$20,000	$1,275	31.1.08	Interim of 30% for 1909	....	30 buyers
Sekong Rubber Co., Ld.	1908	£80,000	27) 80,000	£1	12/6	nil.	nil.	—	....	....	28/6
Shelford Rubber State Ld.	1906	£65,000	65,000	£1	£1	nil.	£836	31.12.08	3% for 1908	....	51/3
Singapore & Johore Rb. Co., Ld.	1903	$250,000	2,500	$100	$100	nil.	nil.	—	....	...	500 buyers
Sungei Choh. Rb. State Co., Ld.	1907	£45,000	45,000	£1	17/-	nil.	nil.	—	....	...	73/6
Sungei Kapar Rubber Co.	1906	£110,000	23) 110,000	£1	£1	nil.	£3,448	31.12.	8½% Interim for 1909	—	105/-

LOANS AND DEBENTURES.	Agents for the Loan.	Amount of Loan.	Par Value.	Outstanding Bonds.	WHEN PAYABLE.	Closing Quotations.
China Government, 7 per cent. Silver Loan 1886 E	Hongkong & Shanghai Banking Corporation.	Tls. 767,200	Tls. 250	1914	‖ Mar. 31st and Sept. 30th each year until Mar. 31st, 1917	par.
Hongkong Hotel Company, Ltd., 6 per cent. Mortgage Debentures of 1899 ‡		$750,000	$500	§ all	Half yearly, June 30th and December 31st	par
Shanghai & Hongkew Wharf Company, Ltd., 6 per cent. Debentures of 1902		Tls. 543,900	Tls. 100	....	Half yearly, June 30th and December 31st	Tls. 103½
Astor House Hotel Company, Ltd., 8 per cent. Debentures of 1903		Tls. 500,000	Tls. 100	....	Half yearly, January 1st and July 1st	102½
Chinese Engineering & Mining Co., Ltd., 6 per cent. Debentures of 1903 †	....	£500,000	¶	£431,960	Half yearly, June 30th and December 31st	par.
International Cotton Manufacturing Co., Ltd. 7% Debentures of 1901	Russo Chinese Bank	Tls. 500,000	Tls. 100	‖	Half yearly, March 31st and Sept. 30th	Tls. 97½.

Plus interest

a Authorised capital $2,000,000.
b Building Reserve Account.
c Capital Reserve Fund.
d Depreciation Fund.
e Equalization of Dividend Fund.
f Exchange and Investment Fluctuation Account.
g Gold Reserve Fund
h Exchange Reserve Account.
i Insurance Fund.
j Reinsurance Fund.
k Contingencies Account.
l Legal Reserve Fund.
m Authorized Capital
n Sinking Fund.
o Raw Sugar Reserve Account.
p Premium on New Issue.
q Boiler Repairs and Renewals Account
r Repairs and Renewals Account.
s Silver Reserve Fund.
t Depreciation and Repair Account
u Underwriting Suspense Account.
v Special account
w Special Works Fund.
x Extra Reserve Fund.
y 72,560 owned by the Company.
z 7,200 shares unissued.
1 4,000 shares unissued.
2 First issue of 60,000 of which 10,411 unallotted.
3 5,000 shares unissued.
4 4,480 shares unissued.
5 5,000 shares unallotted.
6 1,616 shares unallotted.
7 75,000 shares unissued.
8 14,000 shares unissued.
9 17,000 shares unissued.
10 40,453 shares actually issued.
11 7,688 shares actually issued.
12 4,200 shares unissued.
13 500 shares unissued.
14 399 shares unissued.
15 22,277 shares unissued.
16 10,000 shares unissued.
17 Special shares are entitled to half of the profits.
18 Capital contributed by Chinese Government Kuping Tls. 5,000,000.
19 12,000 issued only.
20 Typhoon and Floods Insurance Fund
21 Special Cash Reserve.
22 1000 shares unissued.
23 10,000 shares unissued.
24 4595 part paid shares.
25 7,500 shares unissued.
26 10,000 shares unissued.
27 2,350 shares unissued.
28 25,000 shares unissued.
29 10,000 shares unissued.
*Based on last year's dividend.
** Based on present dividend.
§ 216 held by the Company.
‖ Only Tls. 134,000 taken up.
¶ In certificates of £20 and £100.
‡ Redeemable in 10 years, or at the option of Comp. the Company giving 6 months notice.
† Redeemable at par at rate of £10,000 per annum from 31st December 1903 to 31st December 95.
*** Redeemable at par on 30th June, 1915.
Dr. Deficit.
†† Singapore dollars.
‡‡ 4,880 shares unissued.
× 16,756 shares unissued.
§§ 25,000 shares unissued.
— 4140 shares unissued.

ADDITIONAL SHANGHAI SHARE QUOTATIONS

STOCK	CLOSING QUOTATIONS	HIGHEST AND LOWEST PRICES DURING THE WEEK	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	LAST DIVIDEND	WHEN PAID
Oriental Consolidated Mining Co., Ltd	27s. 6d.		G. $5,000,000	500,000	G. $10	G. $10	none	Interim of Gold .50 for 1909	June 30, 1909
Vulcan Iron Works, Limited	Tls. 400		Tls. 500,000	1,000	Tls. 500	Tls. 500	—	Tls. 50 for year ended 31.8.06	Nov. 1, 1906
Yangtsze Wharf & Godown Co., Limited	Tls. 125 nominal		Tls. 250,000	2,500	Tls. 100	Tls. 100	Tls. 50,000	Tls. 15 for 1908	April 1, 1909
Wei-hai-wei Land & Building Co., Limited	Tls. 10 nominal		Tls. 91,850	3,674	Tls. 25	Tls. 25	—	——	—
Union Estate & Investment Co., Limited	Y. 105 sales		Y. 1,000,000	10,000	Y. 100	Y. 100	—	First year	—
Hotel des Colonies Company, Limited	Tls. 9 sellers		Tls. 112,500	9,000	Tls. 12½	Tls. 12½	Tls. 29,783	6% for 1907	May 29, 1908
Kalee, Limited	$100 nominal		$400,000	4,000	$100	$100	—	2% for 1908	July 3, 1909
Anglo-German Brewing Co., Limited	$85 buyers		$100,000	4,000	$100	$100	none	$7 for 1907	Mar. 12, 1908
Butler Tile Works, Limited	Tls. 50 nominal		Tls. 60,000	1,200	Tls. 50	Tls. 50	—	Tls. 3 for year ending 31.3.09	June 8, 1909
Major Bros., Limited	Tls. 40 sellers		Tls. 300,000	6,000	Tls. 50	Tls. 50	—	——	—
Oriental Ice Company, Limited	Tls. 50		Tls. 130,000	2,600	Tls. 50	Tls. 50	—	First year	—
Scharffs Oil and Bone Mills, Ltd	Tls. 50		Tls. 200,000	4,000	Tls. 50	Tls. 50	—	First year	—
Shanghai Ice Company, Limited	Tls. 13 sales		Tls. 200,000	8,000	Tls. 25		—	3% for 1907	Mar. 14, 1908
Shanghai Oil Co., Limited	Tls. 25		Tls 175,000	7,000	Tls. 25	Tls. 25	—	First year	—
Campbell, Moore & Co., Limited	$10 buyers		$12,000	1,200	$10	$10	$9,000	$3 for 1905	Apr. 2, 1906
Dunning & Company, Limited	$50 sellers		$100,000	2,000	$50	$50	—	$5 year ending 28.2.08	Apr. 15, 1908
J. Llewellyn & Co., Limited	$50 buyers		$72,000	1,200	$60	$60	—	7.20 for 1908	Apr. 1, 1909
Lane, Crawford & Company	$137½ sales		$250,000	2,500	$100	$100	—	Final of 3% making 6% for 1908	June 8, 1909
Mondon (E. L.) Limited	Tls. 6 buyers	137½	Tls. 225,000	9,000	Tls. 25	Tls. 25	none	——	—
S. Moutrie & Company, Limited	$48 sellers		$250,000	5,000	$50	$50	—	$4 for year ended March 31, 1908	June 18, 1908
Weeks & Company, Limited	$26½ buyers		$400,000	20,000	$20	$20	$40,000	Final of $1.20 making $2 for 1908	May 20, 1909
Dominion Rubber Co., Limited	Tls. 4		Tls. 225,000	22,500	Tls. 10	Tls. 4	—	First year	—
Kalumpong Rubber Co., Ltd	Tls. 42 sellers		Tls. 700,000	14,000	Tls. 50	Tls. 50	** Tls. 11,844.48	6% for 1907	Nov. 29, 1908
Senawang Rubber Estates Company, Limited	Tls. 100		Tls. 250,000	2,500	Tls. 100	Tls. 100	—	——	—
Senawang Rubber Estates Company, New	Tls. 75				Tls. 100	Tls. 75			
Tebong Rubber and Tapioca Estate, Limited	20s.		£76,000	76,000	£1	£1	—	——	—
Eastern Fibre Co., Limited	Tls. 10 nominal		Tls. 300,000	30,000	Tls. 10	Tls. 10	—	1/ ex. 2/6=Tls. 0.40 for 1908	August 5, 1909
Shanghai Mercury, Limited	Tls. 50 buyers		Tls. 105,500	2,100	Tls. 50	Tls. 50	—	Final of 6% making 10% for year ended 30.4-08	June 29, 1908
Shanghai Mutual Telephone Co., Limited	Tls. 62 buyers		Tls. 675,000	13,500	Tls. 50	Tls. 50	—	Tls. 3 for 1907	June 28, 1908
China Export, Import & Lumber Company, Limited	Tls. 78 nominal		Tls. 350,000	500	Tls. 100	Tls. 50	—	10 p. c. for year ending 29.2.08	May 1, 1908
China Printing Co., Limited	Tls. 42½		Tls. 750,000	1,500	Tls. 50	Tls. 50	—	7% 1908	Apr. 18, 1909
Dallas Horse Repository Co., Ltd	Tls. 25 nominal		Tls. 250,000	5,000	Tls. 50	Tls. 50	—	——	—
Hirano Mineral Water Co., Ltd.	Y. 15 sales		Y. 125,000	5,000	Y. 25	Y. 25	—	10%=yen 2½ for year ending 30th Sept. 08 Y. 1.20 for year ended Feb. 29	Apr. 26, 1909
E. E. Porter & Co., Limited	$50		$100,000	2,000	$50	$50	—	$6 for 1907	Apr. 22, 1908
Shanghai Electric & Asbestos Company, Limited	$20 sales		$125,000	5,000	$25	$25	—	8% for year ended Feb. 28, 09	June 21, 1909
Shanghai Electric Construction Company, Limited	£11 buyers	£11	£300,000	30,000	£10	£10	—	First year	—

DEBENTURES

LOANS		PRICE—PLUS ACCRUED INTEREST	AMOUNT OF LOAN	OUTSTANDING	NOMINAL VALUE	RATE OF INTEREST	WHEN PAYABLE
Shanghai Municipal Debentures	1892	Tls. 92½	Tls. 50,000	Tls. 45,400	Tls. 100	5 %	June & Dec.
do	1893	,, 96	,, 125,000	" 32,000	" 100	5½ ,,	Do
do	1894	,, 104½	,, 105,000	" 60,000	" 100	6 ,,	Do
do	1895	,, 92½	,, 115,000	" 32,600	" 100	5 ,,	Do
do	1896	,, 92½	,, 140,000	" 131,800	" 100	5 ,,	Do
do	1897	,, 92½	,, 268,800	" 268,400	" 100	5 ,,	Do
do	1898	,, 104½	,, 300,000	" 60,000	" 100	6 ,,	Do
do	1900	,, 96	,, 33,900	" 31,700	" 100	5½ ,,	Do
do	1901	,, 104½	,, 250,000	" 200,000	" 100	6 ,,	Do
do	1902	,, 104½	,, 150,000	" 150,000	" 100	6 ,,	Do
do	1903	,, 104½	,, 490,500	" 490,500	" 100	6 ,,	Do
do	1904	,, 104½	,, 214,500	" 214,500	" 100	6 ,,	Do
do	1905	,, 104½	,, 320,000	" 320,000	" 100	6 ,,	Do
do	1907	,, 104½	,, 250,000	" 250,000	" 100	6 ,,	Do
Chinese Imperial Government Loan	1886 E	,, 250	,, 767,200	" 354,400	" 250	7 ,,	Mar. & Sept
Shanghai Land Investment Co., Debentures	1890	,, 102	,, 250,000	" 250,000	" 100	6 ,,	May & Nov.
do	1892	,, 96	,, 250,000	" 250,000	" 100	5½ ,,	June & Dec.
do	1894	,, 101	,, 250,000	" 250,000	" 100	6 ,,	Mar. & Sept.
do	1896	,, 92½	,, 250,000	" 250,000	" 130	5 ,,	June & Dec.
do	1900	,, 102	,, 250,000	" 250,000	" 100	6 ,,	April & Oct.
do	1901	,, 102	,, 250,000	" 250,000	" 100	6 ,,	June & Dec.
do	1901	,, 96	,, 100,000	" 100,000	" 100	5 ,,	May & Nov.
do	1902	,, 102	,, 400,009	" 400,000	" 100	6 ,,	June & Dec.
do	1905	,, 102	,, 250,000	" 250,000	" 100	6 ,,	Do
Shanghai Waterworks Co., Debentures	1894	,, 103	,, 100,000	" 100,000	" 100	6 ,,	Mar. & Sept.
do	1896	,, 92½	,, 100,000	" 100,000	" 100	5 ,,	June & Dec.
do	1899	,, 103	,, 50,000	" 50,000	" 100	6 ,,	Do
do	1900	,, 103	,, 100,000	" 100,000	" 100	6 ,,	Mar. & Sept.
do	1902	,, 103	,, 100,000	" 100,000	" 100	6 ,,	Do
do	1903	,, 103	,, 100,000	" 100 000	" 100	6 ,,	June & Dec.
Perak Sugar Cultivation Co., Debentures	1902	,, 101	,, 200,000	" 200,000	" 100	7 ,,	April & Oct.
Shanghai Gas Co., Debentures	1897	,, 92½	,, 100,000	" 100,000	" 100	5 ,,	Do
do	1899	,, 102	,, 1,000,000	" 100,000	" 100	6 ,,	May & Nov.
do	1900	,, 102	,, 2,000,000	" 200,000	" 100	6 ,,	June & Dec.
Shanghai and Hongkew Wharf Co., Debentures	1902	,, 100½	,, 799,800	" 799,800	" 100	6 ,,	Do
Astor House Co., Debentures	1905	,, 103	,, 500,000	" 500,000	" 100	7 ,,	Do
British Municipal Council, Hankow	1901	Sh. ,, 105	H'kow Tls 100,000	H'kow Tls 100 000	" 100	7 ,,	June & Dec.
Shanghai Club Debentures	1907	,, 96	Tls. 170,000	Tls. 170,000	" 100	6 ,,	Do
Country Club Debentures		,, 97	,, 139,000	" 139,000	" 100	6 ,,	Do
do	1907	,, 97	,, 92,000	" 92,000	" 100	6 ,,	Do
Lane Crawford & Co., Debentures	1907	,, 100	,, 110,000	" 110,000	" 100	7 ,,	Mar. & Sept.
Anglo-French Land Debentures	1908	,, 102½	,, 250,000	" 250,000	" 100	6 ,,	June & Dec.

SINGAPORE SHARE QUOTATIONS

(Courtesy Messrs. Fraser & Co., Brokers, Singapore, February, 1910)

Date of Formation	Capital	Capital paid up	No. of Shares Issued	Issue Value	Paid up	Reserve	Last Dividend	Name	Buyers
								MINING	
1903	$300,000	300,000	30,000	10	10		12% for year ending 31-3-09	Belat Tin Mining Co., Ltd.	6.75
1907	$300,000	225,000	22,500*v*	10	10			Bruang Ltd.	5.25
1901	$600,000	600,000	60,000	10	10	25,000	10% for year ending 30-4-08	Bruseh Hydraulic Tin Mining Co., Ltd.	6.50
1903	£600,000	444,200	444,200*a*	1	1			Duff Development Co., Ltd.	7.50
1907	$400,000	375,000	37,500*b*	10	10			Kanaboi, Ltd.	2.00
1901	£60,000	60,000	60,000	1	1		2/- interim for 1909	Kinta Tin Mines, Ltd.	14.50
1906	£100,000	100,000	100,000	1	1			Kledang Tin Mining Co., Ltd.	1.50
1905	$150,000	99,000	9,900*c*	10	10	6,485.68	35% for year ending 31-12-07	Kuantan Tin Mining Co., Ltd.	3.00
1906	£120,000	120,000	120,000	1	1			Lahat Mines Ltd.	8.00
1906	£30,000	30,000	30,000	1	1			Malaya and Siam Corporation, Ltd.	....
1906	$450,000	450,000	45,000	10	10			Malacca Tin Dredging Co., Ltd.	2.50
1906	£250,000	179,500	500,000*e*	5/-	5/-			Pahang Consolidated Co., Ltd.	6/3
1907	£100,000	80,000	80,000*f**	1	1			Pengkalen, Ltd.	6.75
1904	£100,000	80,000	80,000	1	1			Pusing Bahru Tin Mines, Ltd	8.50
1904	£120,000	100,000	100,000*d*	1	1	6,000	45% for year ending 30-6-07	Pusing Lama Tin Mines, Ltd.	3.50
1907	$450,000	300,000	30,000*d**	10	10			Rahman Hydraulic Tin, Ltd.	9.00
1905	£27,000	27,000	27,000	1	1		1/- for 1907	Rambutan, Ltd.	10.00
1892	£200,000	191,250	50,000	1	1	4,873	1/- paid January, 1901	Raub Aust. Gold Ming. Co., Ltd.	4.25
			150,000	1	18/10		1/- " " "	" " " *Contributory*	3.75
1905	£40,000	40,000	40,000	1	1			Redhills Tin Mining Co., Ltd.	3.50
1900	$110,000	110,000	22,000	5	5		3% for year ending 22-1-09	Royal Johore Tin Mining Co., Ltd	1.25
1907	$550,000	500,000	50,000*l**	10	10			Salak South, Ltd.	5.00
1907	£80,000	80,000	80,000	1	1			Sempam Tin Mines, Ltd.	2.35
1906	$850,000	850,000	85,000	10	10	25,000	5% interim for 1909	Serendah Hydraulic Tin Ming. Co., Ltd.	7.50
1899	$230,000	230,000	23,000	10	10		3% for ½ year ending 31-12-08	Sipiau Tin Co., Ltd.	1.50
1909	$200,000	$150,000	15,000	10	10			Sungei Gau Tin Mining Co., Ltd.	4.50
1907	£90,000	70,000	70,000*w*	1	1		1/6 interim for 1909	Tekka, Limited	20 50
1906	£150,000	150,000	150,000	1	1		1/- interim for 1909	Tongkah Harbour Tin Dredging Co., Ltd.	15.00
1902	£160,000	160,000	160,000	1	1		2/- interim for 1909	Tronoh Mines, Ltd.	13.50
								RUBBER	
1909	£85,000	75,000	750,000*x**	2/-	2/-			Allagar Rubber Estates, Ltd.	4/10½
1909	$120,000	105,000	105,000*e*‡	1	1			Alor Gajah Rubber Estate, Ltd	2.00
1909	$750,000	600,000	140,000*b*‡	5	5			Ayer Panas Rubber Estates, Ltd.	7.00
1905	£150,000	150,000	1,500,000	2/-	2/-		25% interim for 1909	Anglo-Malay Rub. Co., Ltd.	1.2.3
1905	$200,000	151,200	15,120*c**	10	10	7,400	20% interim for 1909	Balgownie Rub. Estate, Ltd.	125.00
1909	£50,000	35,250	470,000*e**	2/-	1/6			Batang Malaka Rubber Estates, Ltd.	2/3
1904	£30,000	20,187 10/-	19,000	1	1		10% for year ending 31-12-08	Batu Caves Rub. Co., Ltd.	8.1.0
			4,750*f*	1	5/-				
1906	£80,000	70,000	70,000*s**	1	1		5% for year ending 31-3-09	Batu Tiga (Selangor) Rubber Co., Ltd.	3.8.6
1909	£100,000	68,908	57,816	1	1			Bukit Kajang Rubber Estates, Ltd	2.11.0
			22,184*x**	1	10/-			" " " *Contributory*	1.15.0
1907	£30,000	22,500	18,000*k**	1	1			Bukit Lintang Rubber Estates, Ltd.	3.12.6
			6,000	1	15/-			" " " *Contributory*	3.2 6
1903	£70,000	66,700	66,700*g*‡	1	1	2,000	15% interim for 1909	Bukit Rajah Rubber Co., Ltd.	10.15.0
1906	£35,000	30,000	30,000	1	1			Castlefield (K.) R. Estate, Ltd.	4.5.0
1910	$750,000	700,000	70,000	10	10			Changkat Serdang Estates, Ltd	13.00
1909	200,000	62,500	12,500‡*c*	10	5			Cheras Rubber Estates, Ltd	8.50
1909	£225,000	175,000	1750,000*d*	2/-	2/-			Chersonese (F.M.S.) Estates, Ltd	3/10½
1904	£16,000	16,000	100,000	2/-	2/-		25% interim for 1909	Cicely Rubber Estates Co., Ltd	1.13.0
			60,000	2/-	2/1-		26½% interim for 1909	" " " " 5% *Pref*	1.13.6
1905	£75,000	62,007	62,007*i*	1	1	1,000	25% interim for 1909	Consolidated Malay Rub. Estates, Ltd	8.17.6
1906	£110,000	102,500	102,500*r**	1	1		12½% for year ending 31-12-08	Damansara (Selangor) Rubber Co., Ltd.	5.7.6
1909	£45,000	40,000	40,000*z*‡	1	1			Edinburgh Rub. Estates, (Selangor) Ld.	3.9.0
1909	$550,000	475,000	475,000*f*‡	1	1			Elphinstone Estates, Ltd	1.95
1909	$300,000	300,000	300,000	1	1			Glenealy Plantations, Ltd	1.35
1907	£80,000	70,000	70,000*y**	1	1			Golconda Rubber Co., Ltd.	4.2.6
1909	$600,000	150,000	30,000	10	5			Henrietta Estates, Ltd.	4.75
1906	$680,000	680,000	40,000	17	17			Hevea Rubber Planting Co. Ltd.	13.00
1906	£310,000	305,000	305,000	1	1	8,784	7½% interim for 1909	Highlands & Lowds. Para Rub. Co., Ltd.	5.5.0
1904	£50,000	30,000	30,000	1	1	2,500	5% for year ending 30-6-09	Inch Kenneth Rubber Estates, Ltd	9.0.0
1909	$250,000	200,000	20,000	10	10			Indragiri (S.) R. and Gutta P. Co., Ltd.	23.50
1909	£200,000	182,500	950,000*j*	2/-	1/-			Kam. (P.) R. & T. Co., Ltd. "A" Shares	6/9
			105,000	1	1			" " " "B" "	...
1905	£65,000	65,000	65,000*a*‡	1	1			Kapar Para Rubber Estates, Co., Ltd.	6.3.6
1907	$300,000	200,000	20,000	10	7			Kombok Rubber Co., Ltd	15,00
1906	£180,000	180,000	180,000*q*	1	1		20% for year ending 30-6-09	Kuala Lumpur Rubber Co., Ltd	6.17.6
1907	£100,000	90,000	90,000	1	1		7% for year ending 30-12-08	Labu (F. M. S.) Rubber Co., Ltd. *Contrib.*	4.7.0
1907	£320,000	269,780	198,930	1	1	3,000	10% interim for 1909	Lanadron Rubber Estates, Ltd.	5.0.0
			70,850	1	15/-		10% interim for 1909	" " " *Contributory*	4.9 6
1906	Gs 135,000	135,000	580	250	250			Langen Rub. and Cocoanut Co., Ltd.	..
1908	£125,000	75,000	60,000*o**	1	1			Ledbury Rubber Estates Ltd.	3.2.0
			40,000*z*	1	7/6			" " " *Contributory*	1.18.0
1895	£100,000	98,324 8/-	883,244	2/-	2/-	4,000	65% interim 1909	Linggi Plantations Ltd., *Ordinary*	1.17.3
			10,000	1	1		7% for year ending 31-12-08	" " " 7% *Pref*	...
1907	£140,000	118,000	118,000	1	1		3% for year ending 31-12-08	London Asiatic R. & Produce Co., Ltd.	4.18.6
1909	£220,000	75,000	150,000	1	10/-			Lumut Rubber Estates, Ltd.	1.5.0
1906	£400,000	300,000	185,000	1	1		10% interim for 1909	Malacca Rubber Plants., Ltd. *Ordinary*	9.7.6
			115,000	1	1		" " "	" " " 7½% *Pref.*	9.7.6
1909	£210,000	175,000	1,750,000	2/-	1/6			Merlimau Rubber Estates, Ltd	2/10½
1909	$400,000	400,000	80,000	5	5			Pajam Limited	10.00
1909	$200,000	200,000	200,000	1	1			Pantai, Limited	1.20
1903	£30,000	22,500	225,000*l*	2/-	2/-		25% interim for 1909	Pataling Rubber Estates Synd. Ltd	1.19.0
1909	$500,000	450,000	45,000*m**	10	10			Pegoh, Limited	34.00
1906	£85,000	85,000	85,000	1	1		12½% interim for 1909	Perak Rubber Plantations, Ltd.	4.10 0
1910	$450,000	295,000	45,000*f*‡	5	5			Port Dickson Rubber Co., Ltd	..
			35,000	5	2			" " "	4.75
1909	£60,000	36,875	15,000*l*	1	1			Rembia Rubber Estates Ltd. *Ordinary*	....
			35,000	1	12/6			" " " 6% *Cum. Pref*	1.0.0
1904	£20,000	18,752	20,000*u*	1	1			Sagga Rubber Company, Limited	6.17.6
1904	$100,000	100,000	50,000*b**	2	2	20,000	60% interim for 1909	Sandycroft Rubber Co., Ltd	24.00
1905	£100,000	100,000	71,378	1	1			Sapong Rubber and Tobacco Estates, Ltd.	1.13.0
			28,622*l*‡						
1907	£100,000	80,400	48,000*i**	1	1			Seafield Rubber Co., Ltd.	4.16.0
			48,000	1	13/6			" " " *Contributory*	4 0.0
1898	£30,000	30,000	300,000	2/-	2/-	3,000	50% interim for 1909	Selangor Rubber Co., Ltd.	2.4.6
1909	£50,000	32,000	400,000*e*‡	1	16/-			Sendayan (F. M. S.) Rubber Co., Ltd	1.10.0
1906	£65,000	65,000	65,000	1	1		3% for year ending 31-12-08	Shelford Rubber Estate, Ltd.	2.5.0
1909	£150,000	100,000	100,000*i*‡	1	15/-			Sialang Rubber Estates, Ltd	1.15.0
1909	£120,000	100,000	100,000*o**	1	1			Singapore Para Rubber Estates, Ltd.	2.12.6
1905	$500,000	500,000	5,000	100	100			Singapore Rubber Co., Ltd.	325.00
1903	$425,000	328,800	2,423	100	100			Singapore & Johore Rub. Co., Ltd.	575.00
			1,750	100	50			" " " "	425.00
1909	$250,000	60,000	10,000*x**	10	6			St. Helena Rubber Coy., Ltd	16.50
1906	£175,000	175,000	175,000	1	1		4½% for year ending 31-3-09	Straits Settlements (B.) Rub. Co., Ltd.	3.5.0
1907	£45,000	40,500	12,600	1	1			Sungei Choh Rub. Estate, Ltd. *Fully pd.*	3.12.6
			32,400*	1	17/6			" " " " *Contributory*	3.5.0
1906	£110,000	100,000	100,000*h*	1	1		7½% interim for 1909	Sungei Kapar Rubber Co., Ltd.	5.2.6
1907	£70,000	55,000	55,000	1	1			Sungei Salak Rubber Co., Ltd.	3.5.0
1904	£50,000	50,000	50,000	1	1			Sungei Way (Selangor) Rub. Co., Ltd.	4.5.0
1908	£150,000	60,000	36,000	1	1			Tebrau (Johore) Rubber Co.	2.10.0
			64,000	1	7/6			" " " *Contributory*	2.0.0
1909	$200,000	165,000	33,000*v**	5	5			Teluk Anson Rubber Estate, Ltd.	5.00
1907	£200,000	170,000	170,000*r**	1	1		5% for year ending 31-8-08	United Serdang (S.) R. Plantations, Ltd.	4.7.6
1909	$1,000,000	637,500	737,500*m*	1	1			United Singapore Rubber Estates, Ltd.	1.35
				1	-/50			" " " "	...
1908	£85,000	65,000	650,000*n*	2/-	2/-		10% for year ending 30-6-09	United Sumatra Rubber Estates, Ltd.	11/-
1904	£60,000	50,600	506,000*m*	2/-	2/-		25% interim for 1909	Vallambrosa Rubber Co., Ltd.	1.12.0
								GENERAL	
1907	$1,500,000	1,065,150	25,000*i**	10	10		10% for year ending 31/12/08	Eastern Smelting Co., Ltd.	....
			116,450	10	7		10% for year ending 31-12-08	" " "	8.00
1898	$225,000	225,000	4,500	50	50	150,000	15% & 2½% bon. for yr. end. 31-12-08.	Fraser & Neave, Ltd.	151.50
1905	$2,400,000	2,400,000	18,000	100	---	75,000	2½% for year ending 31-10-08	Howarth Erskine, Ltd.	58.00
			6,000	100	...		7% for year ending 31-10-08	" " 7% *Pref*	90.00
1896	$1,000,000	1,000,000	6,000	100	100	600,000	10% for year ending 31-12-07	Katz Brothers, Ltd. *Deferred*	----
			4,000	100	100		8% " " " "	" " 8% *Cum. Pref*	....
1901	$34,000	34,000	3,400	10	10		20% for year ending 31-10-09	Maynard & Co., Ltd.	22.00
1899	$875,000	875,000	6,000	100	100	175,000	5% for year ending 31/12/08	Riley, Hargreaves & Co., Ltd.	75.00
			2,750	100	100		7% for year ending 31/12/08	" " " " 7% *Pref.*	103.00
1903	$600,000	250,000	25,000*n*	10	10		10% for year ending 30-6-09	Singapore Cold Storage Co., Ltd	14.25
1891	$30,000	30,000	600	50	50	23,000	10% for year ending 31-7-08	Singapore Dispensary Ltd.	54.00
1903	£400,000	400,000	400,000	1	1			Singapore Electric Tramways, Co., Ltd.	4/3
1884	$200,000	200,000	2,000	100	100	35,000	10% during 1907	Straits Ice Co., Ltd	135.00
1890	$500,000	498,000	4,980*z*	100	100	760,000*q*	5% interim for 1909	Straits Steam Ship Co., Ltd.	197.50
1887	$3,000,000	3,000,000	3,000,000	10	10	130,000*r* 1,222,409	10% & 5% bon. for half yr. end. 30-9-09	Straits Trading Co., Ltd.	55.00

a { 152,800 unissued; 43,940 6% debenture
b 2,500 unissued
c 5,100 "
d 20,000 "
e { 54,500 £1 Prefs. issued; 45,500 £1 " unisd; 100,000 5/- Ord. "
f 6,250 unissued
g 3,300 "
h 12,993 "
i 5,000 "
j £40,000 6% Debentures 22,000 unissued
k 75,000 unissued
l 94,000 "

o 175,000 unissued "A" shares
p Sundry Reserves.
q "
r 7,500 unissued
s 20,000 "
t 2,268 9/- paid shares
u 50,220 unissued
*a** 16,756 "
*c** 4,880 "
*d** 15,000 "
*e** 20 unissued
*f** 20,000 "
*g** 221 7½% Debentures
*h** 10,000 unissued
*i** 8,550 "

*m** 25,000 unissued
*o** 10,000 "
*p** 4,000 "
*q** 30,000 "
*r** 7,500 "
*s** £10,000 Convertible 6% Debentures issued
*t** 10,000 do. unissued
*n** 5,000 unissued
*w** 20,000 "
*x** 15,000 "
*v** 7,000 "
e‡ 20,000 "
b‡ 5,000 "
d‡ 500,000 "

*u** 15,000 unissued
c‡ 100,000 "
u 262,500 "
f‡ 10,000 "
g‡ 5,000 "
h‡ 30,000 "
i‡ 30,000 "
j‡ 10,000 "
k‡ 10,000 "
l‡ 10,000 "
m‡ 30,000 "
n‡ 5,000 "
o‡ 50,000 "
p‡ 70,000 "
q‡ 35,000 "
r‡ 6% Deb. Stock

DEBENTURES

Howarth Erskine, Ltd. 6%	$ 600,000	....
Riley, Hargreaves & Co., Ltd. 6%	284,000	1%
Singapore Electric Tramways, Co., Ltd. 5%	£350,000	....
Singapore Municipal 5%	1,878,000	3%
" " 4½% of 1907	1,600,000	3½%
" " 4½% of 1909	1,000,000	3½%
" " 4%	602,900	6%

YOKOHAMA SHARE QUOTATIONS

COURTESY A. C. HUTTON POTTS, SHARE AND GENERAL BROKER, YOKOHAMA, OCTOBER, 1909.

STOCKS.	CAPITAL.	NO. OF SHARES.	ISSUE VALUE.	AMOUNT PAID UP.	RESERVE FUND.	AT WORKING ACCOUNT OR CARRIED FORWARD.	DATE.	LAST DIVIDEND.	FOR TERM.	CLOSING QUOTATION.
Brett & Co., Ltd.	-Y- 28,000	2,800	-Y- 10	-Y- 10			31-12-08	12½%	for 1 year	10 Sales.
Club Hotel, Ltd.	185,000	1,850	100	100	3,000	-Y- 768.96	31-3-08	7%	for 1 year	70 Nominal.
Grand Hotel, Ltd.	500,000	5,000	100	100	10,000		30-6-09	4%	for ½ year	100 Sales
Helm Bros., Ltd.	186,000	3,720	50	50	25,000	-Y- 6,395.55	31-12-08	17½%	for 1 year	80 Sales,
Langfeldt & Co., Ltd.	100,000	2,000	50	50	10,000	6,296.63	30-6-09	5%	for ½ year	45 Sales.
C. Nickel & Co., Ltd. †	500,000	20,000	25	25		36,332.37	31-10-09	20%	for 1 year	45 Buyers
Yokohama Engine and Iron Works *	500,000	10,000	50	50	50,000	-Y- 29,421.19	31-5-08	10%	for 1 year	50 Nominal.
Oriental Hotel, Ltd., Ordinary }		3,000	50	50			31-8-07	12%	for 1 year	50 Nominal
	250,000				306,090.49					
Oriental Hotel, Ltd., Preference }		2,000	50	50				8%	for 1 year	50 Nominal.
The Union Estate and Investment Co., Ltd. ‡	1,000,000	10,000	100	100	6,000.00	1,753.03	30-9-08	7%	for 1 year	100 Nominal.

† 285,000 unissued.
‡ 475,000 unissued.

*-Y- 390,000 issued.
110,000 unissued.

DEBENTURE LOANS.	AMOUNT OF LOAN.	FACE VALUE OF DEBENTURES.	RATE OF INTEREST.	INTEREST PAYABLE.	CLOSING QUOTATION.
Brett & Company, Limited	11,500.00	100.00	7%	1 June and 1 Dec.	95 Sales.
Yokohama United Club	250,000.00	100.00	7%	30 June and 31 Dec.	100 Sales.
Oriental Hotel, Limited	350,000.00	100.00	8%	1 April and 1 Oct.	103.50 Sales.
Union Estate and Investment Co., Limited	250,000.00	100.00	6%	30 June and 31 Dec.	95 Sellers.

JAPANESE STOCKS.	FACE VALUE.	AMOUNT PAID UP.	LAST DIVIDEND.	DIVIDEND PAYABLE.	CLOSING QUOTATION.
Bonds & Debentures.					
Exchequer Bonds 2nd issue	-Y-100	-Y-100	5%	March and Sept.	-Y-101.50
Exchequer Bonds 3rd issue	100	100	5%	March and Sept.	,, 101.50
Consolidated Bonds (Seiri)	100	100	5%	June and Dec.	,, 100.00
War Bonds (Gunji)	100	100	5%	June and Dec.	,, 100.00
Imperial 5% Bonds	100	100	5%	March and Sept.	,, 101.00
Special 5% Bonds (issued 1906)	100	100	5%	June and Dec.	,, 100.00
Yokohama Water Works Bonds	100	100	6%	June and Dec.	,, 104.00
Yokohama City Public Loan Bonds	100	100	6%	March and Sept.	,, 104.50
Osaka City Harbour Construction Bonds	100	100	6%	June and Dec.	,, 103.00
Osaka City Public Loan Bonds	100	100	6%	June and Dec.	,, 103.00
Kawasaki Dock Yards Co.'s Debentures	100	100	7%	June and Dec.	,, 104.00
Tokyo Race Associations "	500	500	30%	June and Dec.	,, 110.00
Railways & Electric Trams.					
Tokyo Railway Company, Limited	50	50	5 2/15%	June and Dec.	,, 17.55
Yokohama Electric Tramway Company, Limited	50	50	6%	July and Jan.	,, 51.00
Keihin Electric Tramway Company, Limited	50	50	6%	June and Dec.	,, 61.00
Southern Manchurian Railway Co., Ltd.	100	20	6%	June and Dec.	,, 51.00
Hanshin Electric Tramway Co., Ltd.	50	50	12%	May and Nov.	,, 118.70
Cotton Spinnings.					
Kanegafuchi Cotton Spinning Company, Limited	50	50	14%	July and Jan.	,, 107.50
Fuji Gassed-yarn Company, Limited	59	50	14%	July and Jan.	,, 104.20
Tokyo Cotton Spinning Company, Limited	50	50	5%	July and Jan.	,, 47.80
Imperial Hemp Weaving Company, Limited	50	50	12%	July and Jan.	,, 75.70
Nisshin Boseki Kabushiki Kaisha	50	12½	5%	——	,, 16.30
Sugar & Beer Cos.					
Dai-nippon Sugar Refinery Company, Limited	50	50	......	May and Nov.	,, 17.00
Ensuiko Sugar Refinery Company, Limited	50	20	20%	June and Dec.	,, 47.20
Dai-nippon Beer Company, Limited	50	50	12%	July and Jan.	,, 82.45
Kirin Brewery Company, Limited	50	50	6%	July and Jan.	,, 52.50
Docks & Steamships.					
Yokohama Dock Company, Limited	50	33	12%	June and Dec.	,, 60.00
Uraga Dock Company, Limited	50	50	......	July and Jan.	,, 8.50
Kawasaki Dockyard Company, Limited	50	50	12½%	Feb. and Aug.	,, 54.00
Nippon Yusen Kaisha	50	50	10%	May and Nov.	,, 89.50
Hokkaido Tanko S. S. Company, Limited	50	50	14%	July and Jan.	,, 37.70
Miscellaneous.					
Tokyo Electric Light Company, Limited	50	50	12%	June and Dec.	,, 99.80
Tokyo Gas Company, Limited	50	50	13%	July and Jan.	,, 102.95
Yokohama Union Electric Light Company, Limited	50	50	14%	June and Dec.	,, 94.00
Fuji Paper Mills	50	50	6%	June and Dec.	,, 34.90
Otaru Timber Company, Limited	50	50	......	March and Sept.	,, 12.00
Hoden Petroleum Company, Limited	50	50	20%	April and Oct.	,, 76.55
Tokyo Rope Manufacturing Company, Limited	50	50	18%	June and Dec.	,, 103.00
Japan Horse Improvement Company, Limited	50	50	15%	March and Sept.	,, 6.00
Tokyo Stock Exchange Company	50	50	15 1/15%	June and Dec.	,, 174.10
Osaka Electric Light Company, Limited	50	50	16%	July and Jan.	,, 139.50
Kobe Electric Light Company, Limited	50	50	14%	July and Jan.	,, 110.00

BANGKOK SHARE QUOTATIONS

(COURTESY MESSRS. EDWARDS & CO., BANGKOK, SIAM.)

NAME.	BUYERS.	SELLERS.	LAST SALES.	ESTABLISHED.	CAPITAL.	NO. OF SHARES.	ISSUE VALUE.	AMOUNT PAID UP.	RESERVE FUND	LAST DIVIDEND.
Siam Electricity Co., Ltd.	Tcs. 380	Tcs. 390	Tcs. 380	1901	£ 300,000	30,000	£ 10—	£ 300,000	Tcs. 491,338	12% Tcs. 4 bon.
Paknam Railway Co., Ltd	,, 200	,, —	,, 220	1893	Tcs. 400,000	5,000	Tcs. 80	Tcs. 400,000	,, [illegible]7,566	8%
Siam Tramway Co , Ltd	,, —	,, —	,, 140	1905	,, 1,450,000	{ 6250 Shares 7250 Deb. 1000 P. Shares	,, 100	} ,, 2,230,000	,, 1,875	—
Meklong Railway Co , Ltd	,, —	,, 106	,, 105	1907	,, 2,230,000	22,300	,, 100	,, 223,000	,, 28,000	5%
Bangkok Manufact. Co , Ltd	,, —	,, —	,, 132	1898	,, 400,000	4,000	,, 100	,, 400,000	,, 60,000	{ 7% per for 6
Bangkok Dock Co., Ltd	,, —	,, 135	,, 1?5	1865	,, 1,000,000	10,000	,, 100	,, 950,000	,, 220,000	} months
Siam Steam Packet Co.	,, —	,, 57	Par	1898	,, 190,000	3,800	,, 50	,, 190,000	,, 34,000	5%
Siam Commercial Bank	,, 1,050	,, —	Par	1906	,, 3,000,000	3,000	,, 1,000	,, 3,000,000	,, 338,850	8%
Menam Motor Boat Co.	,, —	,, 100	,, 100	1905	,, 200,000	2,000	,, 100	,, 200,000	—	6%
Transport Co., Motor.	,, —	,, 90	,, 100	1906	,, 200,000	2,000	,, 100	,, 200,000	—	—
Jenderata Rubber Co *	,, —	,, £8.—	,, 90 (for six calls)	1906	£ 40,000	4,000	£ 10	£ 7.-paid	—	—
Bagan Rubber Co.	,, —	,, —	,, —	1907	Tcs. 300,000	3,000	Tcs 100	Tcs. 40 per share	—	—
Siam Steam Navigation Co., Ltd.	,, —	,, —	,, —	1909	,, 2,000,000	10,000	,, 200	—	,, 10,000	—
Siam Stone Works, Ltd.	,, —	,, 90	100	1909	,, 350,000	3,500	,, 100	,, 350,000	—	6% half year
Kombok Rubber Co	,, —	,, —	19	1906	$ 300,000	30,000	$ 100	$7, per Share	—	—

PHILIPPINE SHARE REPORT

JUNE 1ST, 1909

NAME	WHEN INCORPORATED	AUTHORIZED CAPITAL	ISSUE VALUE OF SHARE	NO. OF SHARES	SUBSCRIBED	PAID UP	RESERVE	WORKING %	DATE	LAST DIVIDEND	CLOSING QUOTATIONS
American Drug Store	1908	₱ 100,000	₱1,000	100	40	₱1,000	......	₱ 5,000	Jan. 4, 1909..	....	No sellers.
*Banco Español Filipino	1851	3,000,000	200	15,000	8,439	200	₱225,000	....	....	7% for year 1908....	200 buyers
Benguet Consolidated Mining Co.	1903	2,000,000	2	1,000,000	495,000	2	......	38,000	Feb. 2, 1909..	....	₱1.10.
Benguet Commercial Co., Ltd.	1908	200,000	10	20,000	7,360	10	......	....	....	7% for year 1907....	₱10.
Bua Mining Co.	1905	300,000	100	3,000	2,620	100	......	2,000	Aug. 18, 1909.	....	₱100.
Cadwallader-Gibson Lumber Co.	1908	1,000,000	100	10,000	8,650	100	......	....	....	....	No sellers.
*Camote-Clayton Mining Co.	1909	400,000	10	40,000	20,000	10	......	....	....	....	₱10.
*Compania Maritima	......	1,018,000	200	5,090	5,090	200	......	....	....	....	₱40 sales
*El Varadero de Manila	......	350,000	100	3,500	3,500	100	......	....	....	....	Sellers 70
Electrical Supply Co., Inc.	1909	100,000	100	11,000	500	72	......	....	....	....	No sellers
Export & Import Lumber Co.	......	200,000	200	1,000	1,000	200	......	....	....	....	No sellers.
*Fabrica de Hielo de Manila	1894	350,000	50	7,000	7,000	50	......	....	....	18% for year 1908...	₱75 sales.
*Germinal Cigar Factory	1900	500,000	500	1,000	1,000	500	₱285,000	14,806	....	6% for year 1908 and 6% on capital......	650 buyers.
H. E. Heacock Co.	1909	100,000	100	1,000	800	100	......	....	....	First year...........	No sellers.
*Headquarters Mining Co. (Inc.)	1908	600,000	10	60,000	35,000	10	......	....	....	....	₱6 buyers.
Insular Lumber Co.	1907	2,000,000	200	10,000	9,000	200	......	....	....	....	No sellers.
Juan Seiboth Co., Ltd.	1908	150,000	20	7,500	500	20	......	....	....	First year...........	....
*La Concha Button Factory	1905	75,000	100	750	750	100	......	....	....	10% for year 1908...	₱110 sellers.
Lambert, Springer Co.	1908	200,000	1,000	200	80	1,000	......	....	....	....	No sellers.
Luzon Stevedoring Co.	1909	250,000	25	10,000	4,200	25	......	....	Sept. 15, 1909	15%...............	₱25.
Mindanao Herald Publishing Co.	1907	15,000	100	150	75	100	......	....	Dec. 31, 1908.	½ of 1% interim for 1908	No sellers.
Newspaper Publishing Co.	1907	400,000	100	4,000	3,740	100	......	....	....	....	....
Minas Carbon de Batan	1902	1,000,000	200	5,000	1,523	200	......	136,812	....	....	200
Walter E. Olsen Co., Inc.	1909	500,000	100	5,000	2,033	100	......	....	....	First year...........	No sellers.
Paracale Gold Dredging Co.	1907	£10,000	£1	10,000	9,000	£1	......	....	....	....	£1.10 s.
Palomar Park Amusement Co.	1908	300,000	......	300,000	60,312	.50	......	....	....	....	₱1.
Phil. Hemp Machine Co., Ltd.	1907	1,000,000	100	10,000	8,500	100	......	....	....	....	₱100
Philippine Publishing Co.	1907	600,000	200	3,000	2,181	200	......	....	Mar. 1st, 1909	₱3 a share for 1908..	₱50
Port Banga Lumber Co.	1908	100,000	100	1,000	934	100	None.	40,000	First Saturday in January..	None...............	No sellers.
The Philippine Gold Dredging Co.	1907	200,000	10	20,000	20,000	10	......	....	....	....	No sellers.
*Philippine Co., Ltd.	......	750,000	10	7,500	7,500	10	......	....	....	....	₱5 buyers.
Philippine Rosin & Turpentine Co.	......	150,000	1	150,000	70,000	1	......	....	....	First year...........	....
Philippine Exploration Co.	1908	2,000,000	10	200,000	90,000	10	......	....	....	....	No sellers.
The Rosenstock Pub. Co.	1908	75,000	10	7,500	6,000	10	......	....	....	....	No sellers.
*San Nicolas Iron Works	......	300,000	500	600	600	500	......	....	....	....	₱200 sellers.
San Mauricio Gold Mining Co.	1908	4,000,000	200	20,000	......	....	......	....	....	First year...........	₱200.
Tarlac Railway Co.	1906	150,000	100	1,500	1,500	100	......	₱9,674.75	June 30, 1908.	....	No sellers.
Union Hemp Machine Co.	1909	50,000	10	5,000	2,600	10	......	....	....	....	No sellers.
Zamboanga Cold Storage Co.	1903	40,000	100	400	200	100	₱8,500	....	May 1st, 1909.	20%...............	₱120.

* John T. Macleod's share list

PHILIPPINE BONDS

	DATED	AUTHORIZED	ISSUED	OUTSTANDING	PAR VALUE	RATE OF INT.	WHEN PAYABLE	LAST QUOTATION
Philippine Friar Land Bonds	Feb. 1st, 1904	$7,000,000	$7,000,000	$7,000,000	$ 100	4%	Feb. 1, 1914	104[illegible]
Public Works and Permanent Improvement Bonds	March 1, 1905	$5,000,000	$2,500,000	$2,500,000	$ 100	4%	March 1, 1915	104[illegible]
Do.	Feb. 1, 1906		$1,000,000	$1,000,000	$ 100	4%	Feb. 1, 1916	104[illegible]
Manila Sewer and Water Works Improvement Bonds	June 1, 1905	$4,000,000	$1,000,000	$1,000,000	$ 100	4%	June 1, 1915	104[illegible]
Do.	Jan. 2, 1907		$2,000,000	$2,000,000	$ 100	4%	Jan. 2, 1917	104[illegible]
Philippine Railway First Mortgage Four per cent Thirty Year Sinking Fund Gold Bonds	July 1, 1907	$15,000,000	$5,736,000	$5,736,000	$1000	4%	July 1, 1937	97

*Payment of interest guaranteed until maturity or redemption by the Philippine Government.

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THE FAR EASTERN REVIEW
COMMERCE · ENGINEERING · FINANCE

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DAYLIGHT IN MANCHURIA

China's Problem to Retain Possession of the Three Eastern Provinces

Shanghai, March 1st, 1910.—The Great Trans-Siberian line, the Highway of the Bear, stretching across the Asiatic continent from the Urals to the confines of Manchuria, was conceived by Russia as the basis of a great expansion scheme, and constructed from strategic and commercial motives. In its long path through the southern part of Siberia, it parallels the northern limits of Mongolia for over a thousand miles, at an average distance of 150 and at places as near as 100 miles. At several points large settlements and military outposts are established within a day's march of the Mongolian Border, and can be rapidly connected by rail with the main line at a small cost.

The trail of the Bear, through his own domains by the way of the Amur to the sea at Vladivostok, is a long, cold, and most expensive one, while a much shorter and economical route lies across the almost level plains of Northern Manchuria in Chinese territory. From the initiation of the great trans-continental scheme, Russia always had in mind, as her objective, the shorter route across the dominions of her neighbor, but to avert suspicion and criticism, she led the world to believe that her intentions were to follow the Amur. And so, following the far north-eastern boundary of China, she built the Ussuri branch of the Great Trans-Siberian Railway from Nikolsk to Habarovsk, and pushed her Trans-Baikal division up the Shilka Valley to Stetinsk. But when the opportune time came, she secured from China the right to construct and operate the convenient "cut off" through northern Manchuria known as the Chinese Eastern Railway, and later on the additional concession of an outlet to the sea at Port Arthur.

And then came the war, and with the Peace of Portsmouth, the way of the Bear was checked, and Russia deprived of the southern outlet, and debarred from employing her "cut off" for military or strategic purposes. This clause made it difficult for Russia to strengthen her position east of Baikal, and placed Vladivostok and the Maritime Provinces at the mercy of Japan in the event of future trouble. So it is not to be wondered at that hardly had the ink dried on the Peace document, then Russia began to devise ways and means to circumvent and nullify its provisions by constructing the Amur Railway through its own territory, to facilitate the transport of troops and munitions of war to her base at Vladivostok. And without any great opposition, the Duma authorized its construction at an enormous cost, and to-day the work is being pushed rapidly ahead, and at the same time the Trans-Siberian line is to be double tracked. Experience during the war demonstrated that the weakest link in the chain of communication was the ferry across Lake Baikal, especially in winter. And so the Circum-Baikal line has been constructed in the face of great engineering difficulties, and is now open to traffic.

The economic importance of these developments is far outweighed by the gravity of their strategic significance. And we learn that for purely commercial reasons a railway is to be built connecting Omsk with Barnaul and Semapalitinsk, both places within 150 miles of the Mongolian frontier, and through their outpost at Bish, within striking distance of the Chinese border capital of Kobdo.

The Russian Central-Asian and Trans-Caspian railway system terminates at Andijan within a hundred miles from the Chinese border of Sinkiang, and within an easy march of Kashgar, and her military post road skirts the frontier to Fort Vernoe, commanding the approach to the Chinese province of Ili, the gem of Central Asia, of which Kuldja is the capital. Here a Russian Consul, with a Cossack escort, a Russian post and telegraph office, holds extraterritorial sway over half the inhabitants who are Russian subjects, and the day the Great White Czar wills it, this morsel will drop into the capacious maw of the Bear, in spite of all opposition.

From the Central Asian terminus of Russia's military railway at Andijan, the project has been discussed of extending the line beyond to Kashgar, Aksu, and Hami, through the Pan Handle of Kansu, to Lanchow, and thus connecting with the proposed line from there to the East. This would give Russia another through Trans-Asian line, but the project is opposed by China. And so, for reasons which concern only her own interests, Russia has circled the Chinese frontier with strategic lines of communication. When she threw her great trunk line across the continent, built the Ussuri line at the eastern end, and pushed her iron road up to the doors of Kashgar, and as she is now girdling the Amur with a 300,000,000 rouble railway, and showing her locomotives up to Barnaul and Kiackhta, her every move was a direct menace to the Chinese Empire, from a political viewpoint.

To the south from her vantage point in Indo-China, France constructed her little meter gauge military line from Hanoi to the Kwangsi border, and pushed the Laokay Line into the heart of Yunnan. To the southwest, Great Britain, from her Burma stronghold, has followed up the great valley of the Irrawaddy, and her railways terminate within a few miles of the Yunnan border. Her explorers and engineers have surveyed and spared no pains or expense to seek an easy entrance into the rich Chinese province beyond, and so connect the Yangstze valley with India.

In Korea, Japan has quietly built her Fusan to Wiju line, contemplates the construction of a branch up the Yalu River valley, and with a bridge over this river connect her Korean railways with the line to Mukden in the heart of Manchuria.

Russia, France, Great Britain and Japan have carried out their respective railway policies within the confines of their own territories, exercising their recognized sovereign rights to conduct their own affairs without let or hindrance from their neighbors. When it suited their policy to construct a railway parallel to, or following the immediate boundary of China, or terminating at some strategic point, commanding one of China's back doors, China's wishes were never consulted. The roads were simply built, and it was no body's concern. As these foreign roads did not cross or enter Chinese territory, the entire Empire could be encircled and hedged in by the semi-strategic railways of adjoining powers, without China having the right to protest. Fair play demands that China should also be permitted to exercise similar rights within her own territory. But at this late day, China has evinced the desire to construct a railway within her own confines, linking the

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Imperial capital with her far northern frontiers, and to this end has contracted with a foreign financial syndicate to furnish the required funds. But the same Powers, who ignored China's desires when their own interests were at stake, now rise up in their wrath at her presumption in daring to build such a line without consulting with and securing their permission.

Stripped of all superfluous verbiage, this interference or protest is an application of the Right of Might to dictate to China what she shall do in her own house. And despite all diplomatic assurances of fealty to the Open Door, and recognition of China's integrity, the attitude of the Powers towards the attempt on the part of China to construct the Chinchow-Aigun Railway reveals their true attitude and the hollowness of professed doctrines when special interests are even remotely threatened. From now on the pretence of respecting China's sovereignty may as well be practically abandoned for the principle has received a rude shock from its professed steadfast supporters.

It is not difficult to analyze the situation and understand the motives prompting the different Powers to reveal their true policy towards China. Those who run may read, and it does require a close student of affairs to realize that forces are at work, which, unless checked in the near future, will again convert Manchuria into the Cockpit of the Orient, and that these forces largely emanate from the operation of Russia's policy since the last war. For the Way of the Bear was only temporarily checked by the Peace of Portsmouth. In another few months, victory would have perched on the standards of Russia, and Manchuria and Korea added to the dominion of the Great White Czar. And almost immediately after the signing of the Treaty of Portsmouth, the initial steps were taken to retrieve the lost position. Cloaked under economic necessity, the Siberian country to the east of Baikal has been rapidly colonized. Hundreds of thousands of settlers have found new homes in these regions, thanks to the beneficent policy of the Russian Government, which furnishes transportation and land, and in some cases capital to the settlers. Where five years ago the Russian army had to be recruited and supplied from European Russia, the new movement will enable an army to be raised in the East in case of an emergency. Food supplies and horses will also be found close to the scene of operations in the event of future war. The army of the Trans-Baikal, Priamur, and Maritime Provinces is not short of 300,000 men, on a war basis. The fortress of Vladivostok has been made impregnable. The Circum-Baikal Railway has been completed, and the double tracking of the Trans-Siberian Railway, and the building of the Amur line is well under way.

In fact Russia has openly carried on her plans to strengthen her position in the East and has made remarkable strides. St. Petersburg says that it is all a part of a great development scheme, based on sound economic principles, but the Russian newspapers and unofficial public opinion frankly admit the strategic character of the movement.

And on the other hand Japan is similarly engaged in strengthening her position against her old enemy. Russia threw down the gage last May when the Duma authorized the construction of the Amur Railway. Whatever friendly motives may actuate Japan in her dealings with China, they must perforce be secondary to vital questions affecting her own existence, and so Japan's answer to Russia was at the expense of China by forcing through the reconstruction of the Antung-Mukden line and wringing from her the concession for the Kirin-Hunchun Railway. Both lines were imperative to preserve Japan's position in Korea, and behind it all there still remains the same old issue, which forced Japan to take up arms against Russia. For in case of future hostilities, and in the possibility of Russia's victory, Japan will again be struggling for her national existence. Defeat means the loss of her position in Manchuria, evacuation of Korea, and Russia domiciled across the Straits of Fusan threatening her Island stronghold. It is the old story again of Russia and Japan on a grander scale than before, and the forces now at work embody momentous issues.

In the face of such a situation, the same motives underlying the alliance between Great Britain and Japan must still prevail. British policy in Asia has one cardinal feature before which all issues are secondary. Without India, the British Empire could not exist. "To preserve India free from danger,

therefore, and not only India, but our line of communications with India, Australia and the Far East, it is necessary that those countries which border on India and impinge upon such communications should remain in the hands of friendly or at any rate of innocuous peoples and be kept free from the control of a strong and possible—probably—hostile Power." And the one Power feared by Great Britain in India is and always will be the same, Russia. And whatever will cripple Russia and divert her attention from India, must take pre-eminence over all other issues in Asia. Japan and Great Britain were drawn together in the bonds of the alliance, through their mutual distrust of Russia. As long as Russia's energy and attention is diverted to the Fart East, India is safe. Russian victory over Japan, and the absorption of Manchuria, would leave her free to move towards India, and therefore whatever might weaken Japan's position in the East, and strengthen that of the common enemy, must meet with the disapproval of Great Britain, even though in so doing, other interests are sacrificed. And in this lies the secret of Great Britain's somewhat inexplicable attitude in advising China to consult the wishes of Russia and Japan in the proposed Chinchow-Aigun Railway scheme.

It is true that Great Britain and Russia have arrived at an understanding concerning Central Asia, which temporarily relieves the former from the fear of Russian advance into Afghanistan, and recent events tend to prove that Great Britain is straddling several kinds of fences in her effort to maintain her compromises with Russia, and at the same time uphold her alliance with Japan, and appear friendly with America, and preserve her face with China.

The time is past for equivocation, and it is well to look the situation square in the face. The forces in Manchuria are lining up for another contest. Russia seems bent on regaining her lost ground, and Japan is feverishly preparing for the shock, but at the same time praying to her eight million gods that the conflict may be averted. Japan realizes too well what the result of the next war with Russia will be, and while they are willing to again face the issue, they are determined to exhaust every diplomatic means to ward off the evil day, even to entering into an agreement with the old enemy to preserve what they have got. It is sheer folly to suppose that Japan is thirsting after the bleak and unproductive Maritime Provinces of Siberia, and in case of a conflict with Russia, her objective would not be the storming of the impregnable fortress at Vladivostok, but the cutting of the Russian line of communication somewhere in Manchuria. The war must again be fought on Chinese territory, and there is no good reason why this should be, unless the possession of that territory is the object aimed for as a result of the struggle. There is no pretense about the Russian policy in Manchuria, their object is not to make the territory an open bazaar for all nations, although all nations would have a fair chance to furnish Russia with her requirements. But there has been a confident belief that Japan was playing the game and living up to her oft repeated assurances of fealty to the Open Door and respect for China's integrity.

It is somewhat disconcerting, therefore, to find the *Japan Daily Mail*, the official organ of the Empire, giving voice to the following sentiments:

"With all respect we are bound to say that judged by any of the recognized canons of sovereign rights, Manchuria has not been under China's effective rule ever since the Boxer riots. So mythical was her sway that she allowed the armies of two foreign powers to wage a colossal war on her territory for the avowed purpose of determining whether or not one of the two should terminate its military evacuation of that same territory. No other than the 'reality of surrender' can be honestly found for China's attitude throughout the Russo-Japanese struggle, and unquestionably it is at present a mere euphemism to allege that China is the effective sovereign of Manchuria: whatever diplomatic gilding the pill may carry, there is no mistake about the drug composing it."

And again we read in *Harper's Weekly* a frank confession from the pen of Mr. Adachi Kinnosuke. While disclaiming any official connection with the government, he expects nevertheless to receive a reprimand for his frankness. Mr. Kinnosuke tells us very truthfully and frankly that the South Manchuria Railway is the outer line of Japan's Imperial defences against the day when China may not be content to let bygones be bygones, and in that event it is better to receive the shock on the borders of China's Metropolitan province as far away from Japan as possible, and by the same token, Changchun will be the meeting places of the armies of the Czar and the Mikado when the inevitable occurs. In summing up a long defence of Japan's policy, he concludes, "With all that, one thing can never be gainsaid: *Japan is the rightful owner of Southern Manchuria.*

And by the same logic, Russia is the rightful owner of Northern Manchuria. And here despite the strenuous efforts of diplomacy to conceal real intentions, we find inspired Japanese publicists flatly contradicting the government.

There was only one way to neutralize Manchuria, and Mr. Knox, the American Secretary of State, pointed it out. Russia and Japan emphatically responded in the negative. China's hope of preserving her neutrality in the event of the struggle between Russia and Japan was denied her, and as an alternative came the proposition to construct the Chinchow-Aigun line. While legitimate commercial motives may be advanced on the part of China, to do as she wills in her own territory, these are overshadowed by the urgent strategical necessity of the proposed railway. Her only hope now of preserving intact her territory lies in the construction of the line, and she turned to American and British capitalists for help. This was readily forthcoming. American financiers stood readily to furnish the funds, while a British company was to construct the line. But the same powers, who have girdled her domain with purely strategic roads, deny her the privilege of free action in her own territory. Japan, while protesting, intimated that if the line was connected with the South Manchuria Railway, there would be no objections.

To Russia the line from Chinchow to Tsitsihar was not a particular menace, for it is evident that, when the time comes, such a line would quickly fall into her possession, and permit her to flank the entire Japanese position, hence her willingness and Japan's objection unless the latter could build a connecting link, which would enable her to throw her troops rapidy into the breach, and check a Russian advance in that direction. But Russia did object to the Tsitsihar-Aigun Line, as that would strike right at the heart of her Amur region and permit the cutting of the Amur line to the East.

And in face of both protests China turned to Great Britain for counsel, inasmuch as British interests were to construct the line. But far above her own commercial considerations and friendship for China, Great Britain placed her understanding with Russia, and her alliance with Japan, and the reply to China was that Japan and Russia must be consulted before she could lend her approval. And the world has been informed of Russia's and Japan's attitude, and Great Britain by this act approves of their policy.

Russia now suggests that the entire scheme be abandoned, and instead she will give her permission and provide the funds for construction of the Kiackta-Urga-Kalgan Line, thus seizing the opportunity of reverting to her old cherished dream of an easy approach to Peking.

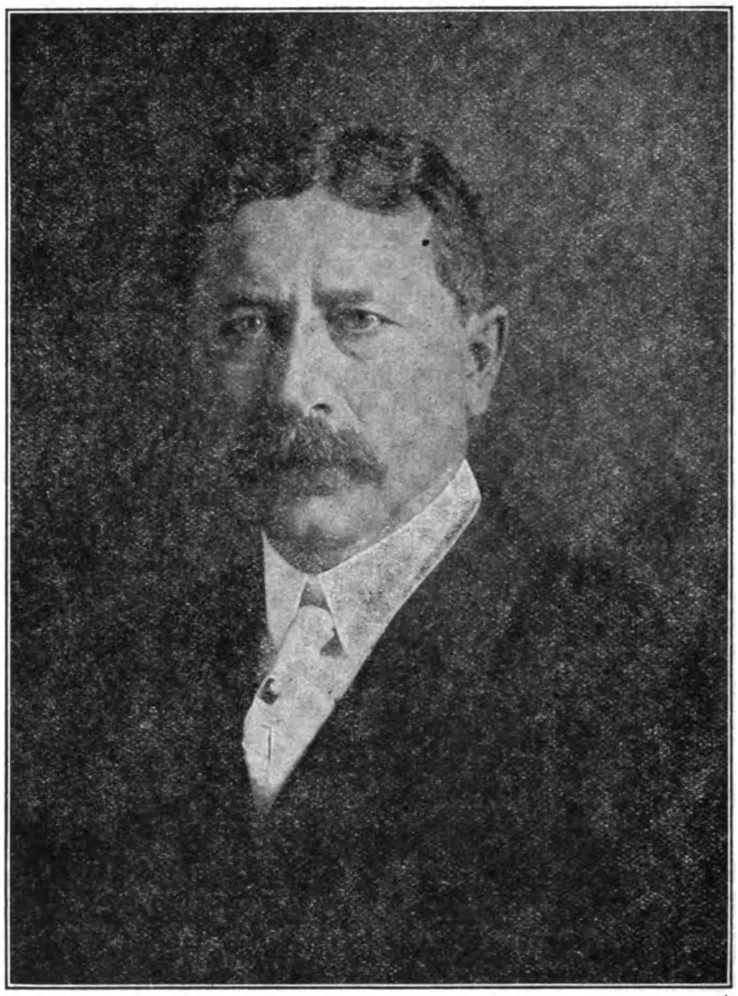
The situation is disconcerting. American diplomacy has let in the rays of the sun on the night of uncertainty. The *London Times* characterized Mr. Knox's scheme as one of "Grandiose Simplicity" and the leading British organ of the Orient, the *North China Daily News*, tells its readers that his circular note was a "diplomatic blunder." Yes, it must be admitted that it was Grandiose Simplicity on the part of Mr. Knox to be misled by the solemn utterances of friendly powers, and was undoubtedly a diplomatic blunder for America to admit her innocent gullibility in the face of repeated assurances of good faith. And American opinion has some justification for complaint, while to her side is drawn the isolated figure of Germany, who has yet to have her say. The lining up of the powers on the Manchuria question reveals an alarming situation, one which should well give pause and a searching of national policies, before old traditions are overthrown, and the breach widens into an impassable gulf.

The veil has been torn away, and the hollowness of the many pretences of recognizing China's sovereignty has been laid bare.

Daylight has come in Manchuria and the rays of the sun shine pitilessly on the scene and the picture is not good or pleasant to dwell upon.

THE HON. NEWTON W. GILBERT

VICE-GOVERNOR OF THE PHILIPPINE ISLANDS AND SECRETARY OF PUBLIC INSTRUCTION



THE HON. CHARLES BURKE ELLIOTT

SECRETARY OF COMMERCE AND POLICE, PHILIPPINE ISLANDS

DEPARTMENT OF PUBLIC INSTRUCTION OF THE PHILIPPINE ISLANDS

The Eighth Annual Report of this department, of which the Hon. Newton W. Gilbert, Vice-Governor of the Philippines, is the head, shows that the appropriation for the year amounted to ₱3,275,000 for the expenses of the Bureau of Education and ₱160,000 for the Philippine Medical School. Besides this amount there were set aside from the permanent improvement fund the sums of ₱189,000 for Normal School buildings in the city of Manila and ₱100,000 for the assistance of municipal school building construction. The number of children enrolled in the primary grades throughout the islands numbered 570,502 and the maximum attendance was 437,735.

THE BUREAU OF SUPPLY.—Under this head the report shows that the total of sales for the year ended June 30th, 1909, amounted to ₱6,002,615.14; the local purchases, ₱3 649,478.58 and the purchases of the bureau from the United States and foreign countries, ₱1,965,845.24. The Division of Cold Storage of this bureau reports net earning of ₱355,759 57.

BUREAU OF PRISONS.—The total number of prisoners in the provincial and insular prisons numbered 6,121 of which 4,611 were insular and the balance distributed among the 39 provincial jails. The average cost of maintenance of prisoners per capita was ₱157.86 per annum or ₱0.433 per diem. A new hospital was completed at Bilibid during the year. Of the 2783 prisoners serving sentence in Bilibid, 1172 are employed in the Industrial Division in the various construction shops. The production for the year amounted to ₱426,736.89 and the expense of operation, ₱378,128.23, making a net profit of ₱50,608.66. Of the total work turned out, ₱365,000 in value worth was for Government use. In addition to this profit, ₱92,243.61 were realized for prison labor. The Iwahig Penal Colony where 712 convicts are being encouraged in the pursuit of agriculture is progressing favorably. Vice-Governor Gilbert directs attention to the lack of provision for the proper care of juvenile offenders and recommends a separate institution or reformatory.

BUREAU OF PRINTING.—The receipts from all sources for the year amounted to ₱525,143.91, to which is added the balance of ₱149,504, forward from former year. The disbursements amounted to ₱468,570.11, leaving an available balance of ₱206,078.56.

BUILDING CONTRACTS IN CHINA

HOW ORDERS ARE PLACED AND SUPPLIES FURNISHED

In answer to an inquiry the Chargé d' Affaires at Peking furnishes the following information concerning the letting of contracts and the furnishing of supplies to contractors for the Chinese Government, which applies fully to North China and, to a great degree, to building construction throughout the Empire:

The Chinese Government has no rules, printed or otherwise, for letting contracts or buying materials. The man on the spot with the lowest price and quickest delivery gets the work. Ninety per cent of all the building done in China is done by Chinese contractors. When foreign material is specified, such as heating plants, plumbing, electric-light plants, light fixtures, constructional steel, etc., tenders for these materials, either delivered on the ground or put in place, are asked for from the many foreign firms in Tientsin or Shanghai. These firms hold agencies for the materials required and all arrangements are made with them.

Neither the native engineer nor the foreign contractor deal directly with the home houses, as it saves much trouble to deal with large houses well established in China. Their prices include freights, duties, and the numberless other small items, and a price is quoted which lands the goods where wanted, and, if desired, puts them in place. The contractor has nothing to do beyond paying the foreign firm in China and making sure that he gets what he ordered.

Unless connections are made with a well-established firm or a permanent agency for a special line of goods created, there is no chance of introducing foreign goods into China. As all the large firms have their own expert engineers, the contractor can have fair prices quoted at short notice on anything. All these firms make it their business to be very much in touch with all proposed work, both government and private. The terms usually offered by the Government are one-third on arrival of papers of shipment, one-third on delivery, and one-third on acceptance. These government terms varied considerably during the last year; in order to help the foreign firms, as money was tight and exchange bad, the Government paid on several occasions one-half on signature of contract and one-half on completion of work.

BEANS:

The Solution of the Commercial Situation in Manchuria

By GEO. BRONSON REA

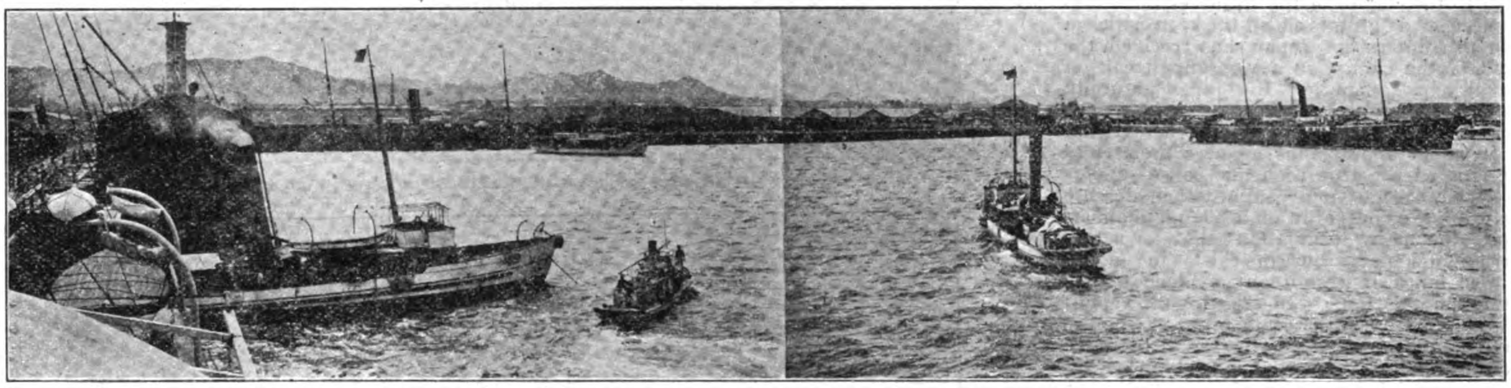
Shanghai, March 1, 1910.—Neutralization of the Manchurian Railways and the construction of the Chinchow-Tsitsihar-Aigun Line are the latest moves in the prolonged diplomatic campaign to nullify Russian and Japanese preponderance in the Three Eastern Provinces. Since the termination of the late war foreign opinion has accepted the theory that unfair tactics and discrimination are the foundation of Japan's commercial success in Manchuria. The average European has refused to believe Japan could secure control of the Manchurian trade, unless underhand methods were employed, and, as a result, trifling commercial incidents have been unduly magnified and complaints to their consular and commercial bodies from Europeans based thereon have rapidly followed each other. Insinuations and accusations have poured in from foreign merchants against the operation of methods employed to secure control of the market. But despite the bitter criticisms, Japanese trade has steadily advanced and their goods have displaced the old familiar "chops." Within two years after the termination of hostilities, Japan controlled the commercial situation, and unsuccessful foreign merchants have charged discrimination and unfair methods to account for her success. At the root of the trouble was the South Manchuria Railway, and on its operation and administration fell the burden of censure. It was accused of car discrimination, secret rebates to favored Japanese firms, incivility and harshness to the traveller, espionage of their movements, discrimination against Newchwang in favor of its own terminal at Dairen, flooding Manchuria with Japanese products through the commissary stores of the army and railway, on which no duties were levied, smuggling across the border, juggling the exchange through the Yokohama Specie Bank, and so on through a long list of similar practices, all tending to advance Japanese interests to the detriment of the foreigner. In fact, if any charge in the code of questionable commercial tactics has been overlooked, we fail to remember it. These accusations soon found echo in resolutions of Boards of Trade and Consular Reports, and the press commented freely on them to Japan's disadvantage. American cotton goods, which formerly controlled the Manchurian market owing to their peculiar adaptation to the requirements of the trade, were displaced by the cheaper and lighter fabrics of Japanese make. *Ergo*, the wily Nipponese could not possibly be playing the game according to Hoyle. Before the war, the demand for American cotton goods in Manchuria alone reached an extent of $3,000,000 gold annually, or a practical control of the entire market. In a short time after the war, the situation was reversed, and Japan supplied $2,000,000 of the demand. As an American writer recently explained:

"There is no question of the existence of the so-called Open Door: but their is a grave question as to whether after passing through the door the alien intruder is able, under present conditions, successfully to compete with the doorkeeper." And then the writer repeats all the stock explanations of the foreigner to account for the situation, but submits no evidence that the Open Door doctrine is violated. As this argument is typical of all others in presenting the foreign side, we extract the following:

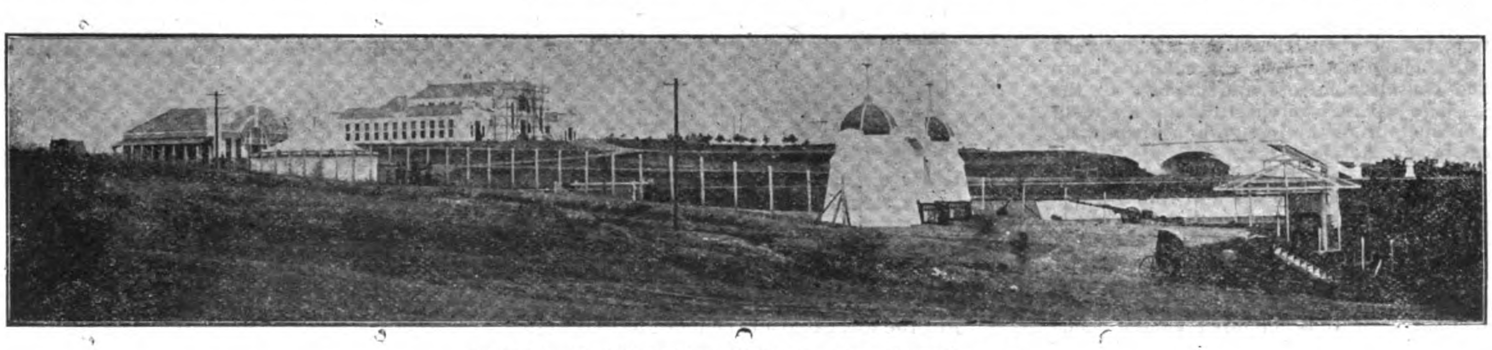
"Before the Russo-Japanese War the demand for American cotton [yarn] in Manchuria reached an extent of $3,000,000 annually. In fact, the entire demand was supplied by the United States. Since the conclusion of the war this demand has been reversed in favour of Japan. Japanese cotton has largely taken possession of the market in Northern Manchuria and bids fair to make similar conquests in the South. In five years, out of a total of $3,000,000 worth of cotton supplied by the United States, Japan alone now supplies the market to the extent of $2,000,000, showing that in this brief space of time Japan has been able to secure some two-thirds of the cotton supply of the country. And what is true of American cotton is fast becoming true of British cotton yarns.

"Now, by what means has this change in favour of Japan been so expeditiously accomplished? No one familiar with affairs in the Far East will be surprised to be told that the achievement is mainly the result of the paternal care and financial assistance of the Japanese Government itself. Japanese traders and manufacturers as a rule are poor, but with the help of their few big export corporations and the backing of the Imperial Government they become a force with which the foreigner cannot easily reckon. The Japanese Government advances all the necessary funds for facilitating shipments of native cotton manufacture, and in every possible manner encourages the expansion of its trade in China. The Government borrows this money abroad at 5½ per cent. interest, including bank commission, and then lends the money to the cotton shippers at the low rate of 2 per cent. to enable them to control the market in cotton fabrics. Thus by a lower rate of interest than the foreigner can possibly command and also by special railway rates the Japanese cotton trader is enabled to compete with British and American products, and even to drive them ultimately from the market.

"Of course the Japanese authorities cannot but be aware of the fact that this policy must ultimately prove an unproductive investment of capital, seeing that in every loan to the cotton traders there is a clear loss to the nation of 3½ per cent.; but there is no reason to believe that the Government intends to continue this suicidal method of developing supremacy in trade longer than is necessary to rid the Manchurian market of foreign competition which end apparently is being gradually but surely attained. The same method of allaying or suppressing competition is followed in encouragement of the shipping interests of Japan. All the leading Japanese steamship companies are heavily subsidised by the Government, by which they are enabled to pay the promised dividends, while they cut freight rate sufficiently to interfere seriously with the carrying trade of all foreign competitors. A familiar example of this is the fact that the Japanese cotton manufacturers are able to import the raw material from Bombay, pay the freight on it and manufacture it, and then export the fabric to India, cheaper than the India manufacturers can produce the same goods on the ground. Hence, though it may appear a mistaken financial policy to pay profits by subsidy, it may none the less prove effective as a temporary expedient to secure permanent control of the coveted market."



UPPER END OF WHARF AT DAIREN

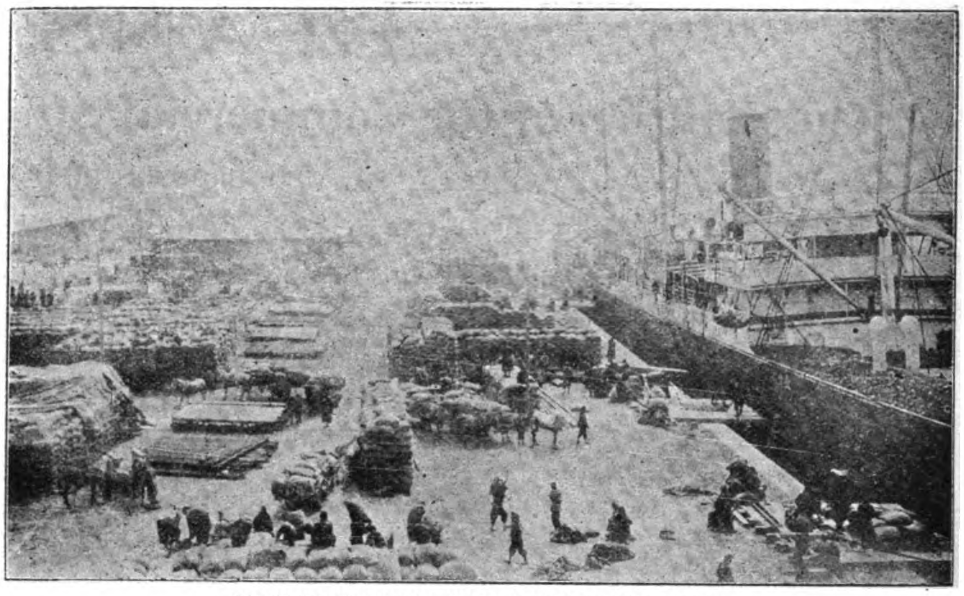


DAIREN. THE "WHITE CITY" OR AMUSEMENT PARK

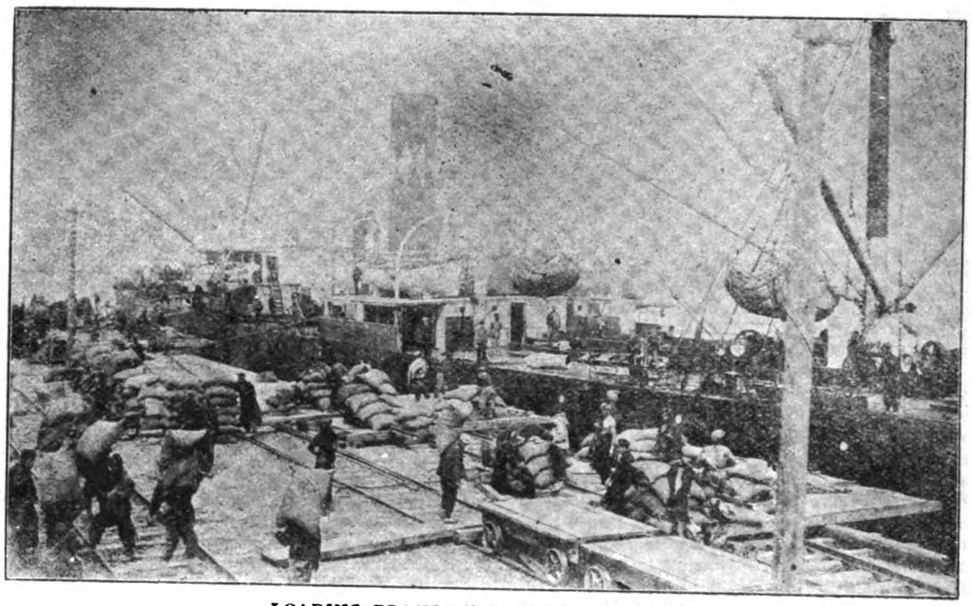
To a large extent this reflects American opinion, and similar arguments are advanced by British interests, although the latter are more pointed and bitter, owing to the heavy inroads of Japanese cotton goods into the Indian market, displacing the products of native and Lancashire looms. British trade has suffered most from the paternal policy of the Japanese government not only in the piece goods export, but in steamship traffic and other lines, and a natural revulsion of sentiment has resulted as yearly balance sheets show decreasing profits. From keen admiration—one might almost be tempted to say adulation—characterizing the attitude of the British in the Far East towards their victorious allies, at the time of the war, the feeling has altered to one of deep distrust and resentment. The Home Government is accused of sacrificing British interests in China to maintain the alliance and so to the clamor of the unsuccessful American piece goods firms is added the keen criticism of British interests. Japan has received the benefit of the enmity in a vigorous attack on her policy in Manchuria. But Japan naturally resents the charges of unfairness and, after a fashion, has attempted to answer her critics. But it would appear the Japanese themselves have ignored the true economic causes underlying their success, and confined their defense in refuting the charges in an academic manner. Despite the many insinuations that an active governmental press bureau exists in Japan, we have failed to record any evidence of its activity on this issue. In fact Japanese publicists have apparently failed to grasp the situation, and in defending their position have followed the lines of argument advanced by their commercial opponents. I do not attempt to assert that Japan's commercial policy in Manchuria is free from criticism, nor propose to defend her political squabbles with China, but, after a careful study of the situation, I am of the opinion that all the charges and insinuations against the South Manchuria Railway Company fall far short of the mark in explaining the loss of the Manchurian market for American and European products. As a result of several trips to Manchuria, I hold firmly to the belief that the present situation is largely the inevitable sequel to the natural operation of the laws of supply and demand, in which the Railway has simply filled its role as a public carrier, and, granting all the charges of discrimination and unfair tactics, the result would be the same.

It is a self-evident law of commerce that the country consuming the major portion of the exports of another country holds the most advantageous position in supplying its necessary imports. The operation of this fundamental economic law is the basis of Japan's success in Manchuria. For years Japan has been the largest consumer of Manchuria's principal export of beans and bean-cake. The bean-cake was an absolute necessity to the Japanese farmer to fertilize his worn out fields. As time passes this demand will be more acute, and failing the cheaper bean-cake with its high percentage of nitrogen, other fertilizing material must be secured. Before the Manchurian railways were constructed and Newchwang was the only treaty port, the larger British firms established there controlled the trade of the province. The beans or bean-cakes were carted or shipped by river junk to Newchwang to be stored in the godowns of the leading merchants, who also controlled the ocean shipping. At the time when the Japanese farmer required the bean-cake for fertilizing the ground for spring planting, the port was closed by ice, and very often the delay in shipping the cake to Japan entailed considerable loss and damage to the crops. The Japanese purchased their supplies of bean products from the foreign hongs who controlled this trade and there was no talk of discrimination at that time. The foreign hongs were satisfied with their position at Newchwang. Their agencies throughout the interior were in the hands of Chinese, as they were debarred from establishing branches outside the treaty port. The Chinese traders brought the bean products to the market at Newchwang, receiving in exchange their stock of foreign piece goods and other sundries for the interior trade. The Japanese purchasers of bean-cake paid the foreigner his profit on the turnover, plus the storage charges, lighterage and freight, and were apparently contented with a situation impossible for them to remedy.

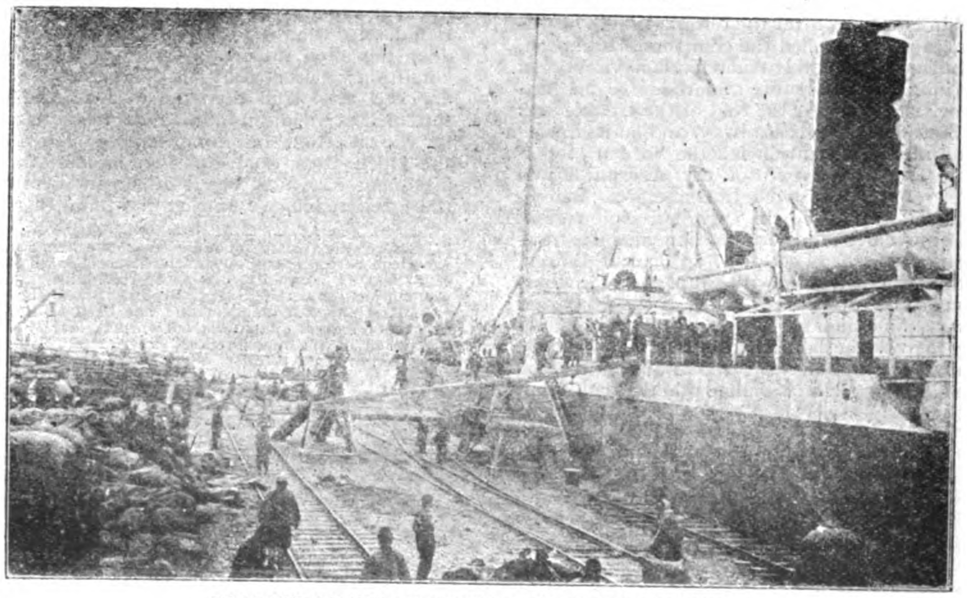
But the war came and changed all this. Japanese merchants entered the field, and, with the ice free port of Dairen as a base, commenced an aggressive campaign to gain control of this important trade. The end was inevitable. As Japan consumed the bulk of the bean-cake, and controlled the railway transportation to a port where storage and lighterage could be eliminated, loading charges reduced to a minimum and their own steamers employed to freight the



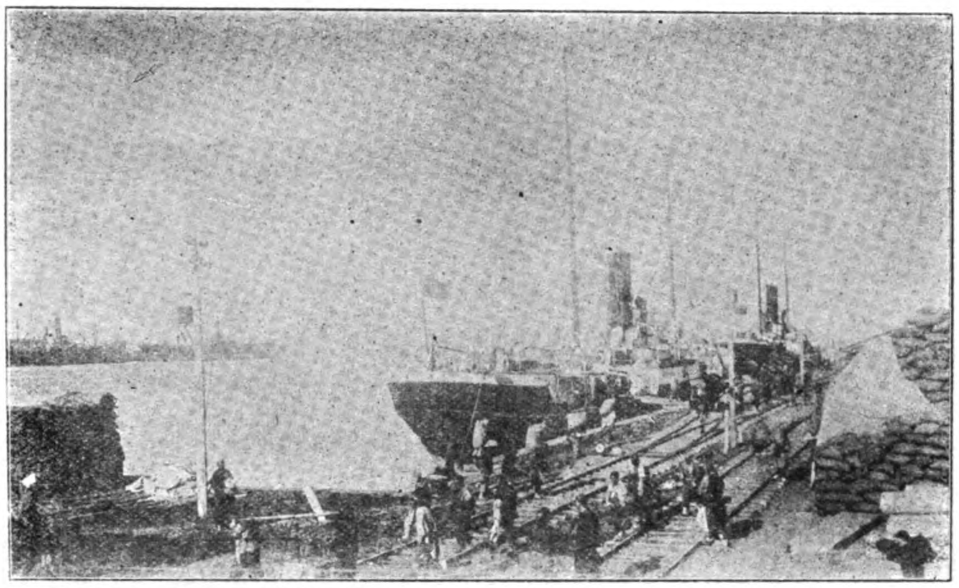
LOADING STEAMER WITH BEANS AT DAIREN



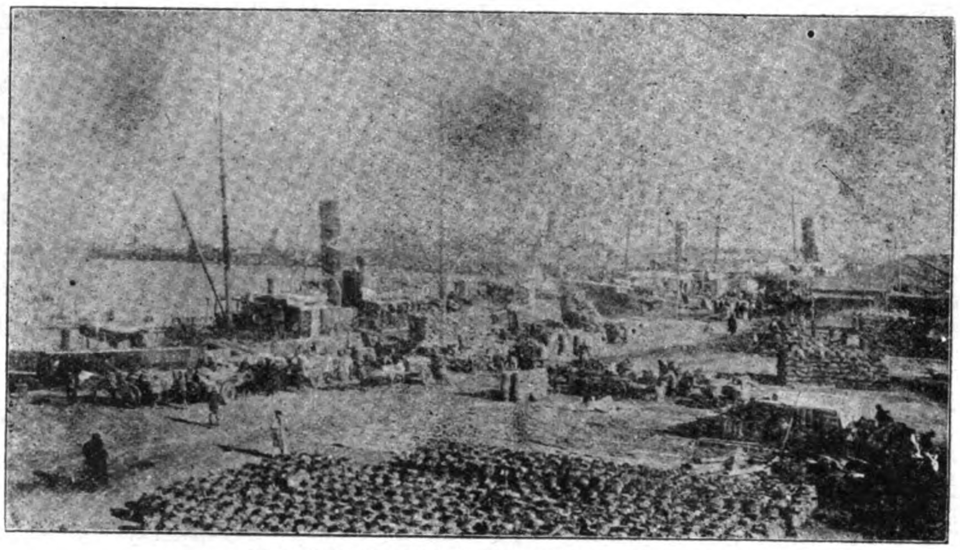
LOADING BEANS AT DAIREN WHARVES



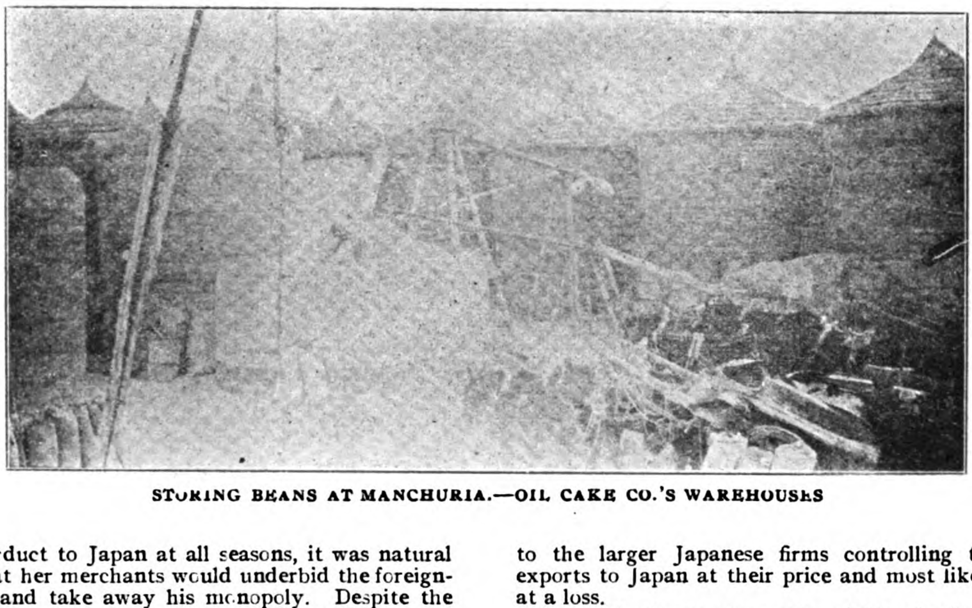
LOADING BEANS ON VESSELS AT DAIREN WHARF



ANOTHER LOADING SCENE AT DAIREN WHARVES



BEAN OIL AWAITING SHIPMENT AT DAIREN



STORING BEANS AT MANCHURIA.—OIL CAKE CO.'S WAREHOUSES

product to Japan at all seasons, it was natural that her merchants would underbid the foreigner and take away his monopoly. Despite the discriminating railway rate, giving Dairen the same tariff as Newchwang, the foreigner never had a ghost of chance after the appearance of Japan on the scene. The storage, handling, and lighterage charges at Newchwang were in themselves sufficient to offset any difference in the railway freight. Against such a condition of affairs it was useless for the foreigner to struggle. If he attempted to purchase beans or bean-cake, he would have to sell eventually to the larger Japanese firms controlling the exports to Japan at their price and most likely at a loss.

So, with the export trade of Manchuria in their hands, it was an easy step to monopolize the imports for such Japanese goods suitable to the demand. At a time when Manchuria was impoverished as a result of a devastating war, and the purchasing power of the inhabitants reduced to a minimum owing to a shortage of currency, commerce was reduced to its original character of simple barter. The farmer, hauling his crop many miles to the nearest market town, exchanged his products for cotton goods and other necessities and received but a small percentage of payment in cash, or the current Japanese war notes.

As a result of the war, many new inland treaty ports were thrown open to trade, and where previously the foreigner was confined to the one port of Newchwang, and forced to deal with the interior through native agents, he could now branch out and establish himself in many large centers of trade throughout the province. Hampered by his established native connections and agencies, the foreigner could not immediately take advantage of this new opportunity without seriously affecting his relations with his old customers. And then again while the country was under Japanese military rule, with its prohibition against travel in the interior, his hands were tied, while his rivals were undermining his position.

On the other hand, the Japanese had no old business connections or traditions to uphold, and as the new ports were opened, branches of their leading firms were quickly established. With a perfect commercial organization in all the open cities of Manchuria, and with storehouses filled with manufactured products rushed on the scene from a nearly source of supply, it was only natural that Japan should soon control the import trade of the province. It must be admitted that her natural commercial advantages were materially aided during the first year or so of military control, by tactics open to criticism, but as long as she continued to purchase the bulk of Manchurian products for her own consumption, she would in turn have controlled the import trade under purely natural laws without official aid or interference.

Under these conditions the foreign merchants and their agents in the interior were placed at a disadvantage from the outset. As they could not penetrate into the interior and purchase beans by an exchange of commodities, they were reduced to selling their wares for cash—the one thing the native was short on. If they attempted to follow the lead of the Japanese and barter merchandise for beans, they were handicapped by their various charges at Newchwang, and having to ultimately sell to the Japanese at their price, which of course was unprofitably under the then existing conditions. The decadence of American and European imports followed as a natural consequence. A few venturesome American and British piece goods agents established themselves in the interior, firmly determined to win back their lost trade, but acting solely as sellers and unable to reciprocate by purchasing the products of the farmers, results were discouraging, and they finally had to abandon the field as unprofitable.

This in short is the real reason for Japan's success in Manchuria. If all the alleged breaches of the Open Door and all the unfair tactics of the South Manchuria Railway actually occurred, it is difficult to see how they could have altered the inevitable working out of a simple economic law.

It is a far cry from high diplomacy to the humble Soya Bean, yet we hold to the belief that the past and present commercial situation and ultimate solution of the vexatious Manchurian problem is bound up in the control of this one product.

And here we enter into a new phase of the situation, which threatens to completely alter existing conditions. Having control of the import and export trade of the province, the largest and most enterprising Japanese trading firm sought to extend the market for the rapidly increasing bean crop. A trial cargo was shipped to England for the oil crushers to experiment on, and from this event dates a new chapter in the story of Manchuria. The opening of this interesting story is described by the *Manshu Nichi nichi Shimbun* of Dairen, the official newspaper of that port under date of November 25, 1909.

"THE 'UBIQUITOUS BEANS'

"Everybody knows that the 'Ubiquitous Beans,' the 'wealth of Manchuria,' are booming up South and North Manchuria as nothing else has ever even come near to, or is ever likely to do. The credit for ushering this new era into the history of Manchurian trade goes without question to Messrs. Mitsui & Co. How this came about will be a matter of interest to many.

"This firm had, before the War, a branch at Newchwang and engaged in the export of Beans to Japan. They thought of shipping Beans, during the winter season when the northern port is closed by ice, to Port Arthur by the Chinese Eastern Railway and thence to Japan by steamer. With this object in view, they approached the Chinese Eastern Railway and induced the latter to publish the freight tariff in the summer of 1903. This led the Mitsuis to consider it worth while to send Beans from Tiehling then taken by them as the buying centre, to Yingkou by junk down the Liao, and then to Port Arthur by rail. In October they made the first purchase of Beans ever undertaken by Japanese in the interior and in this example were followed by the now bankrupt Tungshengho, the then prosperous Newchwang merchants. Hardly had the Mitsui's two Bean steamers sailed out of Port Arthur with the total cargoes of 45,000 piculs when the first guns of the late War were fired. During the War, Russia saw fit to include Beans in the contraband list, and this effectually blocked all their outlets to Japan. It happened that neither could herrings enter into Japan from Saghalien way. These circumstances quite upset the fertilizer market in Japan. In the mean time, the far-seeing management of the Mitsuis started a painstaking study concerning the Bean producing centres of the world and were quite satisfied, as the result, of there being no others than Manchuria and Japan save for Asia Minor and Cochin China, which produced something like Beans. This discovery set them thinking more seriously than ever and was directly responsible for their undertaking the pioneer shipment of Beans to Europe.

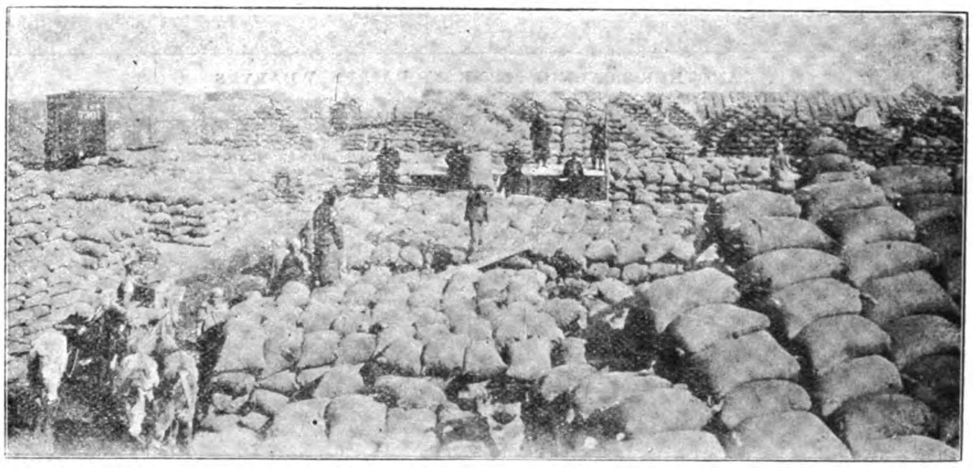
"About the time the Battle of Liaoyang was being fought the Mitsuis bought up all the Beans to be had about Yingkou and dumped them at a fabulous profit on the short stocked market of Japan. They followed up the track of the victorious Army and also their advantage far into the inland and at once began enquiry into the producing capacity of those regions for Beans. It did not take long before they found out to their satisfaction that the output of Beans in South Manchuria has been ludicrously underestimated and then they immediately cast about for the best market in which to offer them, hitting, with a happy stroke of business foresight, upon Europe as such. No sooner was peace restored in October, 1906, than this firm opened its agencies at Tiehling, Mukden, Changchun, Hsinmintun and Kirin and during the winter of '05-'06 sent out their first trial shipment of Beans and Bean Cake to London. This venture proved a miserable failure because, owing to imperfect packing, the cargoes deteriorated so badly on the way that all were thrown overboard. A second consignment to Europe of 500 piculs reached there in good condition in spring last year and met such a favourable reception there that an order for 3,000 tons directly followed and then a string of larger ones in quick succession. The Mitsuis were allowed to reap all by themselves the golden harvest of their own sowing till the end of February this year (1909), when a number of strong foreign firms began to appear on the scene to help foster the Bean trade to what it is to-day."

By the end of the season of 1908 it is claimed that the Mitsui Bussan Kaisha exported at an enormous profit nearly 200,000 tons of beans to Europe and the Yokohama Specie Bank operating in combination made an equally large profit in exchange through the transactions. The British oil seed crushers eagerly accepted the new product as the next best oil producer to cotton seed, which for a long time has held a virtual monopoly for the higher grades of vegetable oil. A recent article on the Soya Oil Bean, in the *National Review*, reproduced on another page, tells the story of how the foreign markets hailed the new rival to the cotton seed.

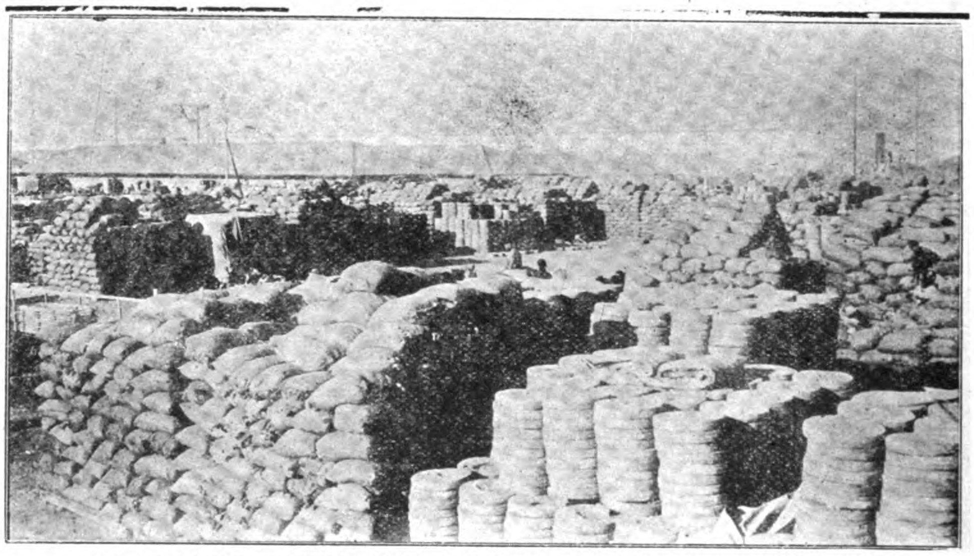
The enormous initial profits of the trade could hardly fail to attract the attention of the great British firms, and incite a desire for participation. Its immense possibilities were quickly realized, and with it came the ambition to wrest the supremacy from the Japanese, and reverse the commercial situation in Manchuria. The first foreign concern to enter the field was Samuel, Samuel & Co., and its China house of Samuel, McGregor & Co., Ltd., and shortly afterwards Otto Reimers & Co., Jardine, Matheson & Co., Arnhold, Karberg & Co., and others entered the arena. Attracted first by the alluring profits of the bean trade, and steamship chartering, these firms soon recognized the practicability of wresting from Japan her commercial supremacy in imports. As long as Japan controls the export of beans her hold on the imports is secure, but with the advent of the powerful European concerns, her position as regards imports is seriously menaced.

The crude soya oil is quoted at about £23 per ton on the London market as against £25 per ton for crude cotton seed oil, and for all general purposes it is considered just as good when refined. The beans found an average market value of £6 per ton delivered in England. At the commencement of the European export when the market was controlled by the Japanese, the price paid to the farmer was as low as Yen 2.50 per picul ($18.50 per ton), so a handsome profit was left after the freight of $4 to $5 was paid. The demand in England is more than

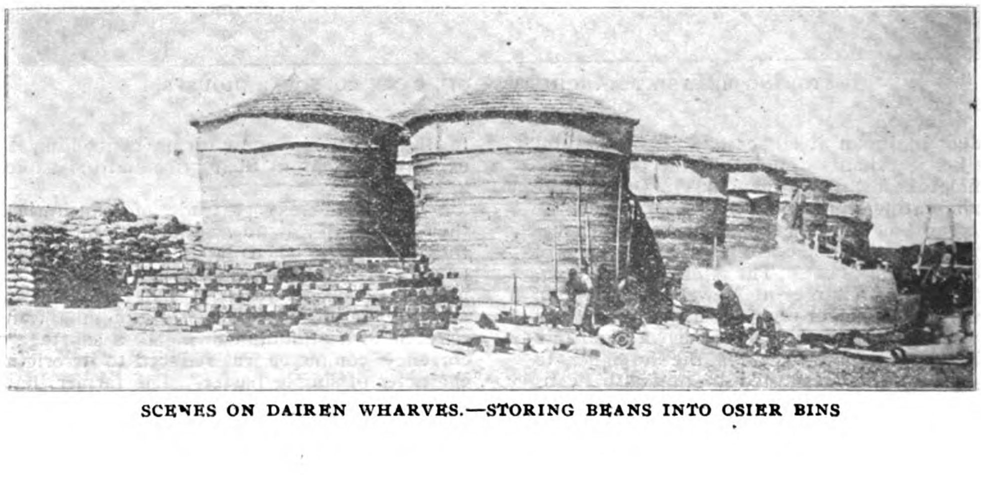
LOADING BEANS INTO SWITCH CARS ON DAIREN WHARVES



VIEW OF PILES OF BEANS ON DAIREN WHARVES

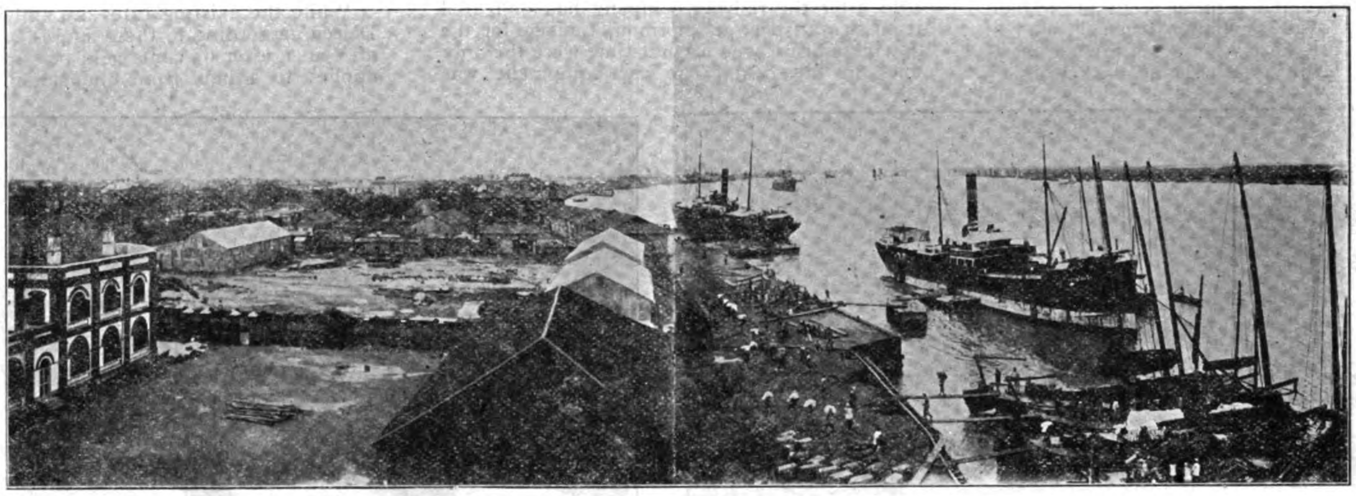


PILES OF BEANS AND BEAN CAKE AWAITING SHIPMENT ON DAIREN WHARVES



SCENES ON DAIREN WHARVES.—STORING BEANS INTO OSIER BINS

THE BUND AND RIVER AT NEWCHWANG.—ONE OF THREE GREAT BEAN MARKETS OF MANCHURIA

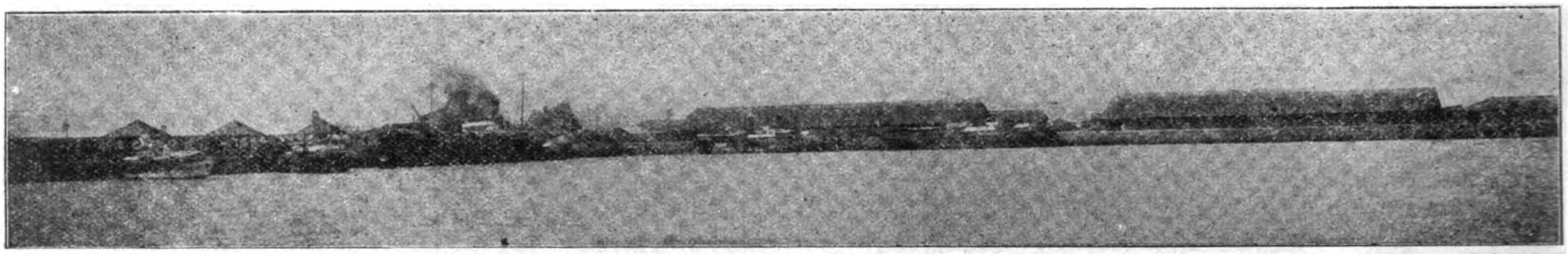


THE LIAO RIVER AND PORT OF NEWCHWANG

BIRD'S EYE VIEW OF NEWCHWANG

the present estimated production of 1,000,000 tons can satisfy, and unless the price is unduly inflated, the demand in Europe will ascend to over 2,000,000 tons.

When the foreign firms commenced operations for a share in the trade the prospects were most promising, as the estimated crop for all of Manchuria was about 1,000,000 tons, and a market eagerly awaiting deliveries. Of this estimated crop it is asserted that only 400,000 tons can be produced in the regions contiguous to and served by the South Manchuria Railway, or that part of the province south of Changchun. The balance of 600,000 tons would have to be secured from the country north of this point, or in the Russian sphere served by the Chinese Eastern Railway, with Vladivostok as a shipping port. Control of transport facil-



PANORAMIC VIEW OF THE LONG WHARF OF THE SOUTH

ities means control of the market, and although the odds were against the Japanese, for a while they maintained their position owing to the shortsighted Russian railway policy, whose prohibitive freight rates to Vladivostok sent the farmers for hundreds of miles into Changchun to secure the lower rates to Dairen over the South Manchuria Line.

When Vladivostok was closed as a free port, and the Chinese Eastern Railway raised its rates in November, 1908, the energetic Japanese immediately took advantage of this act and reduced the rates between Changchun and Dairen to attract the traffic their way. Naturally the farmers, for hundreds of miles within the Russian zone, found it more profitable to haul their crops over the hard frozen ground in winter to secure the advantages of the market at Changchun. The South Manchuria Railway also went further, and, to facilitate the passing of both imports and exports through Dairen, undertook the passing of cargoes through the Dairen customs, pay all charges and generally act as forwarding agents for their clients. This enabled a merchant at Harbin or Tsitsihar to send a cargo through to Shanghai for instance without the expense of a forwarding agent at Dairen. He received a full statement of all expenses plus a small commission for the Railway, and the farmer or merchant was benefited. Russian traffic suffered thereby and it gave to the Japanese, for the time, control of the bean trade. The Russians held the key of the situation, but foolishly gave the advantage to Japan.

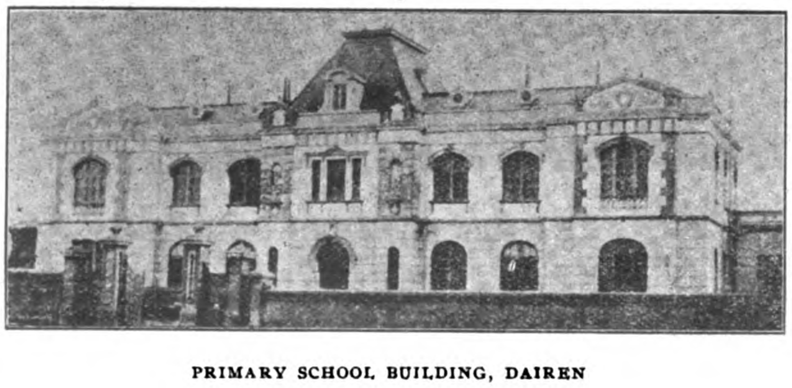
During the winter of 1908-09 the first foreign firm entered the field at Changchun to compete with the Japanese, and while they were successful in securing their share of the purchases, they found it difficult to obtain cars for transporting the beans to Dairen, owing to the fact that the larger Japanese firms had contracted ahead for a great tonnage. At times when the market at Dairen was 25% higher than at Changchun, the foreign firm would find it difficult to secure cars to take advantage of the high market, but on the other hand ample facilities were accorded their Japanese competitors. Of course while such a condition existed it gave the latter control of transportation and, therefore, of the market. It was the old story of car discrimination raised in another form, though it was urged in defense that the foreigner arrived on the field after the railway company had obligated itself to transport an enormous tonnage for the Japanese firms, who at that time were the only ones in the field. The car equipment was limited, and overtaxed to handle the traffic over its single track, and therefore the foreign firm would have to take its chances on cars and accept the allotment made to them. This attitude is apparently justifiable and releases the railway company from the implied charge of discrimination. But the foreign firms made overtures to the Russians for lower rates to compete on even terms with the Japanese, and after several interviews the former modified their tariff to meet the competition of the South Manchuria road. The *Manshu Nichi Nichi* gives these prevailing rates as follows:—

"The Chinese Eastern Railway has lowered the freight charges, etc., on staple produce of Manchuria from Yaomen, north to, and from Mongolia east to, Harbin and thence to the seaport of Vladivostok. The freight rate from any point between Yaomen and Harbin and between Mongolia and Harbin has been made uniform and fixed at 18½ kopeks per pud inclusive of the loading and unloading terminal charges. Taking for instance per ton of Beans for the calculating basis, it takes Y10.175 from say Yaomen at Vladivostok which, added to by export duty and loading charge, will make Y11.04. On the other hand, on the S. M. Railway, it requires for shipment from Kwanchengtzu to Dairen -Y-8.50 for freight and 35 sen for the sundry charges besides 17 sen for Export Duty and 60 sen for cargo-work, making altogether -Y-10.42. Then the steamer freight from Vladivostok to Europe is generally higher than that from Dairen by about 48 sen per ton. Thus, it will be seen that the railway and steamer freights from the producing centres to Europe put together will place the S. M. Railway at an advantage over the Chinese Eastern Railway to the extent of about -Y-1.30 per ton."

While the existing rates are still in favor of Dairen, according to these figures to the extent of Yen 1.30 or 65 cents gold per ton, this only applies to a haul from Changchun. This difference, however, effectively prohibits Japan from securing control of the market, and gives the firms operating in the Russian zone control over the major portion of the crop, and also over future development. The apparent favor of 65 cents gold per ton only extends to those districts where the cart haul to Changchun can be accomplished within that cost, otherwise the Russian road secures the freight for shipment at Vladivostok. So in reality the slight difference is only nominal and, with favorable charter rates from Vladivostok, the market position at Changchun is neutral. In the export of beans shipped to Europe during Nov. '08-June '09, the port of Vladivostok is a close second to Dairen, the figures being 143,739 tons from Vladivostok against 152,000 from Dairen.

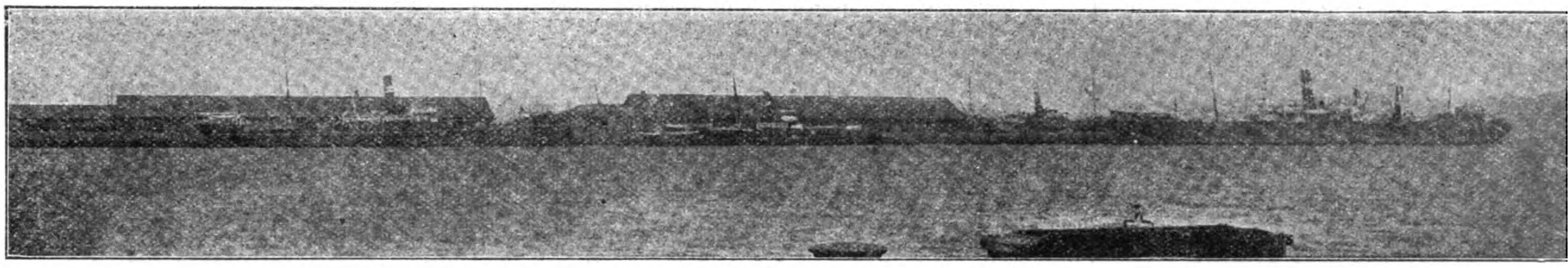
DAIREN.—KAMBU STREET

DAIREN.—KAMBU STREET



PRIMARY SCHOOL BUILDING, DAIREN

THE NEW MILITARY HEADQUARTERS BUILDING, DAIREN

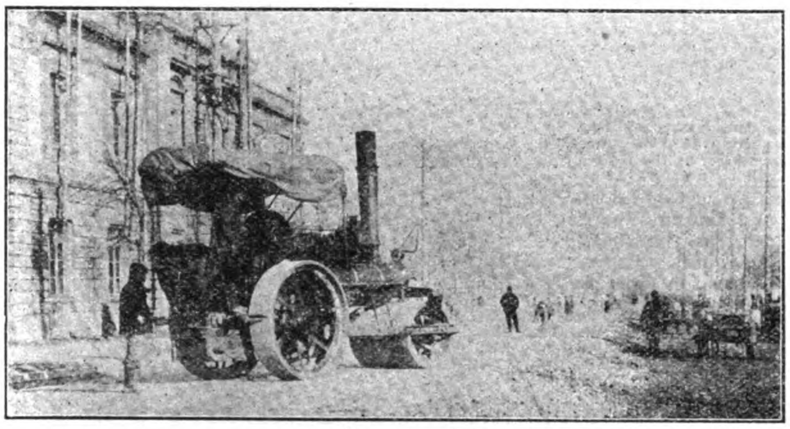


MANCHURIA RAILWAY AT DAIREN

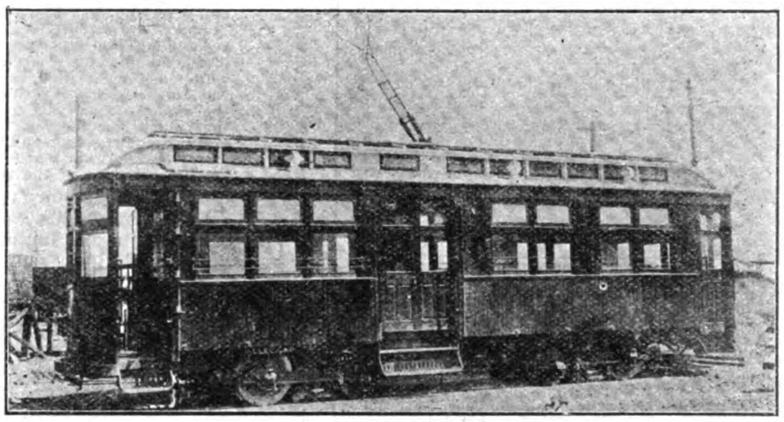
This change in the situation effectively insures fair play to shippers by both railways, and removes from the field altogether any further charge of discrimination on the part of the South Manchuria Railway, as any attempt to withhold cars from the European shippers at Changchun would simply throw the traffic into the cars of the Russian road at their siding. There is now no further insinuation of secret rebates to favored Japanese firms as the maximum rebate officially allowed by the South Manchuria Company is 7% on annual shipments aggregating Yen 500,000 or over. At Yen 8.50 per ton, less than 60,000 tons enables any shipper to obtain the maximum rebate, and as this is only a fraction of the total, it cuts no figure in the fight for control of the trade, and in fact the foreign firms on the ground admit that this factor is now eliminated. So, with car discrimination relegated to the past, and secret rebates eliminated, there are no further grounds for complaint, and Japan must play the game fair, or be defeated. And here is the crux of the whole matter. It is admitted by competent authorities that any great increase in the bean crop cannot be looked for in southern Manchuria, as the country is fairly well developed, and only in the sparsely settled and virgin lands of the North under Russian influence is any great development possible. Already controlling the major part of the visible crop, this will throw the future control of the trade to the Russian railway, and insures foreign firms an opportunity to compete with Japan and Russia on terms of equality. And in this fact lies the menace to Japan's present predominating commercial position in Manchuria, and threatens her future prospects, until the Kirin Railway and its extension to Hunyan is completed. Having in mind the great possibilities of this new agricultural product, and the necessity of Japan controlling the market, so as to insure her hold on the imports, the Kirin-Hunyan railway concession secured from China is as essential to Japan's commercial position as it is strategically. With this road, and its outlet through a new port, paralleling the Chinese Eastern Railway, and competing with it for the products of that region, Japan can bid for the major share of the future enormous bean traffic of Manchuria.

Through her own enterprise in extending the market for bean products to Europe, Japan has opened wide the door to her own disadvantage which foreigners claimed was being closed against them. There is only one end to the fierce commercial fight just initiated. British oil crushers will favor the purchase of beans through British exporters, and, with fair play, the latter will eventually control the trade. As the foreign bean merchant purchases the product of the farmer, and freed from the necessity of disposing of it to Japan, he will be in a position to offer wares of his own country in exchange. And then the tables will be slowly turned and as Japanese goods ousted the foreign so will the latter in turn displace the Japanese. The future of Manchurian trade is yet in its infancy. No more is it a question of how much foreign goods Manchuria can consume, but rather how much the foreigner is prepared to purchase of Manchurian products. As long as the Manchu can raise Beans and find a ready export market at prices averaging $25.00 gold per ton there is no limit to his purchasing ability. A crop of 1,000,000 tons of beans amounts to $25,000,000 gold to the farmers, and with this amount of money circulating in the province the imports will take care of themselves. If British or European markets consume the bulk of this crop, their goods in return will ultimately displace the products of Japan.

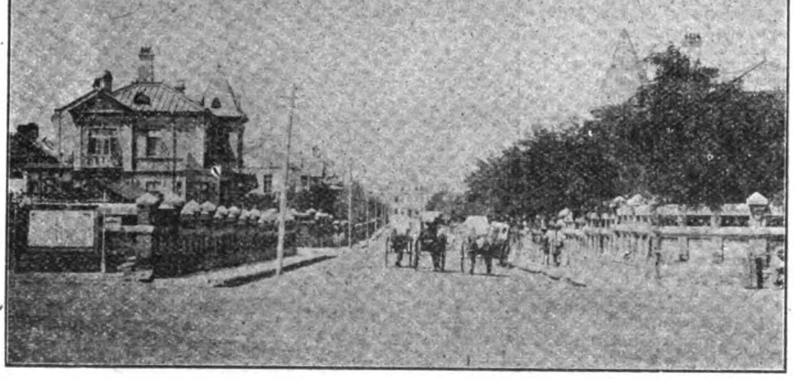
The prospect is a serious one to Japan, as aside from the menace to her export trade, the high prices and steady demand for the beans will diminish the native output of oil and bean cake, and compel her farmers to adopt some other cheap fertilizer instead. With the loss of her commercial supremacy, her political prestige will dwindle in proportion. The railway on the other hand will prosper and reap large dividends. As it is, the road is hard pressed to handle its increasing tonnage, and cannot cope with the situation. As in America during crop season, there is and has been a car famine, and the company simply cannot handle the traffic. The railway was double-tracked to the Fushun Mines to be able to haul out the 3,000 to 5,000 tons per day they will shortly produce, and now as they have about completed this task, the sudden and unlooked for development of the bean trade, compels



ROAD-MAKING, DAIREN

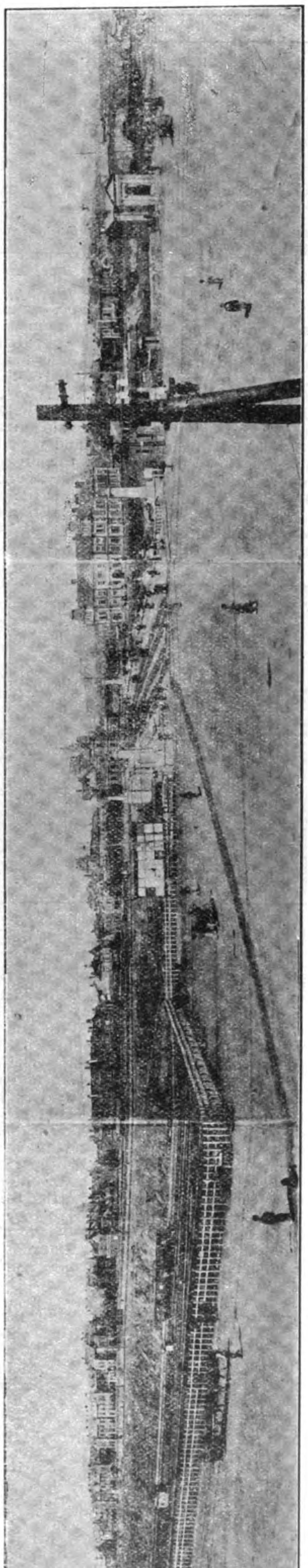


TYPE OF ELECTRIC CAR, DAIREN



KODAMA STREET, DAIREN

NIPPON BRIDGE, DAIREN



PANORAMIC VIEW OF DAIREN, LOOKING ACROSS THE NIPPON BRIDGE TO THE OLD RUSSIAN ADMINISTRATION TOWN

them to doubletrack the entire line to Changchun. Until this is done, the road cannot keep abreast of the demands on its capacity, and as the trade expands we must expect to hear still further talk about discrimination, owing to its utter inability to handle the traffic. Already it is estimated that the export of beans to Europe alone from Dairen will reach 500,000 tons for this season, and with the exports of oil, cake and other cereals to Japan, Korea, South China and elsewhere, the total volume of traffic on the line will exceed 1,000,000 tons, exclusive of the output of Fushun Coal. These figures are eloquent of the forward strides in Manchuria, and to keep pace with the movement must tax the capacity of the railway and port of Dairen to the limit. The following extract from the 1908 report of H. B. M.'s Consul at Dairen throws light on these matters:

Harbour Works, Wharves, &c.—The harbour works at Dairen consist of two large wharves with a breakwater to the north. The west wharf has been in use for a considerable period, and affords berthage for eight vessels, while three more can lie alongside the quay connecting the two wharves. There is accommodation for two vessels at the completed portion of the east wharf, but the remainder is still unfinished. The east wharf is to be 909 ft. long, 540 ft. wide and 30 ft. above low water on spring tides. So far, about one-third has been completed, and another 280 ft. in length is to be added during 1909. During the next winter season grain elevators are to be installed on the wharves. The east breakwater, which is a continuation of the east wharf, is to be 1,221 ft. long, 20 ft. wide, and 19 ft. above low water on spring tides. By the end of 1909 nearly two-thirds will be completed. The total length of the north breakwater is to be 2,850 ft., while the breadth and height are similar to those of the east breakwater. Of the total length about one-half has been completed, and a further 600 ft. will be added in 1909.

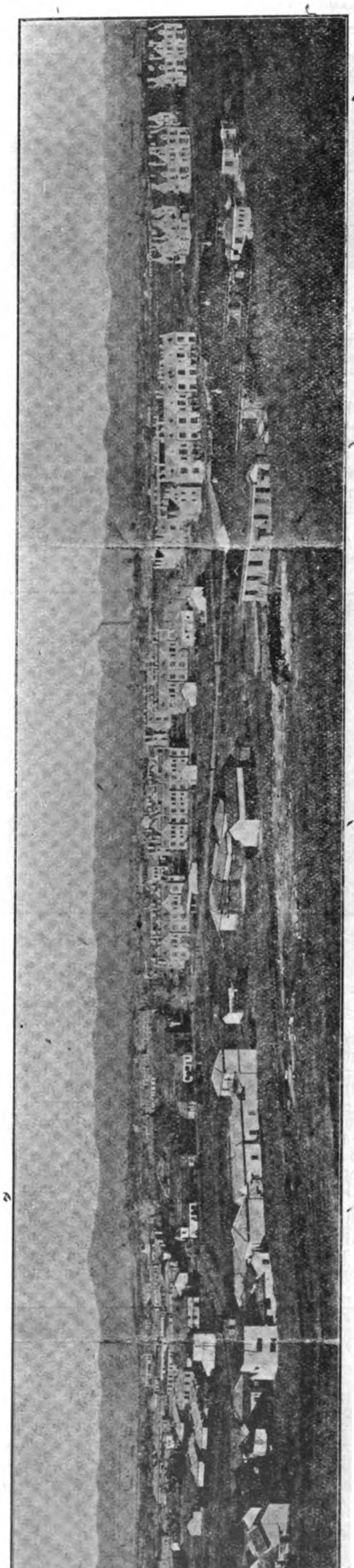
Insufficiency of Accommodation.—Though the wharf accommodation is ample during the summer months it falls far short of the needs of the port in the rush of the winter season. The transporting capacity of the railway this season is 5,000 tons (of 2,000 lbs.) a day, while the export capacity is only 4,000 tons. The result is that stocks on the wharves are accumulating rapidly, and the export season will be prolonged far into the summer. Next season matters will be worse, as the transporting capacity of the railway will be greater.

And next season (1909) has arrived and despite the strenuous work of the Dairen Wharf office during the summer of last year, the wharf accommodation remains inadequate. Extra tracts of land have been added for storage grounds, railway switches extended, and loading devices installed, but the influx of beans is greater than can be carried away by the steamers. The new trade has caused a general revival of steamship business, and vessels from all parts are being chartered to handle the ocean freight. The Japanese were quick to grasp the situation and foresaw that the limitations of the port would throw the trade to Vladivostok, unless something was done to remedy matters. The right to extend the existing branch of the railway three miles into Newchwang, to handle the overflow from Dalny, was secured from China, in the recent convention, but even this outlet cannot give adequate relief, so, as a last resort, Japan has announced to the world, with many flourishes, the opening to trade of the hitherto closed naval harbor of Port Arthur. A recent article in the *North China Daily News* on this matter says:

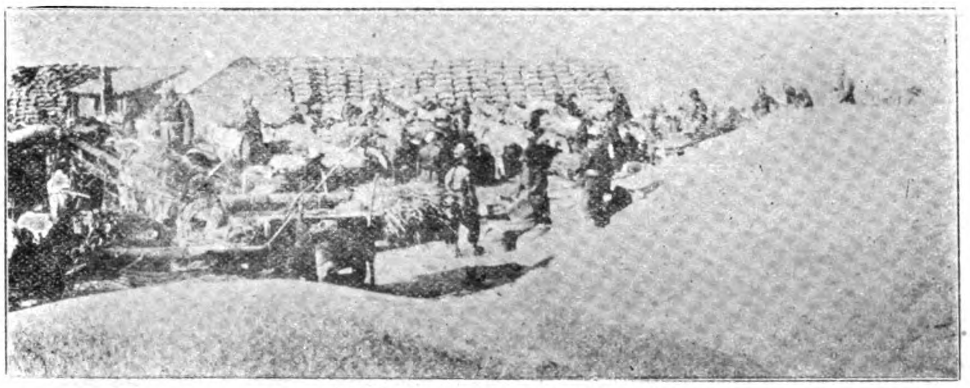
"With regard to the opening of Port Arthur and the South Manchuria Railway Company's plans, an official of the company is credited with saying:—The harbour works of Tairen were planned by Russia. In undertaking these tremendous works, Russia must have had the idea that the harbour of Tairen was ice-free. As the port faces north, however, floating ice is driven out of the port to where the present pier stands. But, owing to the existence of the pier, the floating ice is kept within the port, causing the freezing over of the harbour. To keep the harbour of Tairen free from ice, therefore, a break-water would have to be added to the existing pier. Whether such a work will answer the purpose is, however, a question. Moreover, the construction of a breakwater means the expenditure of great sum of money. Port Arthur on the other hand, is screened by a range of mountains and is entirely ice-free throughout the cold season. The works on the harbour of Port Arthur may perhaps involve expenses as great as those needed for a breakwater at Tairen, but they will, when completed, make the harbour a far better one than the latter.

"The opening of Port Arthur was, the other day, formally announced by the Foreign Minister in the Diet, and the South Manchuria Railway Company has many plans in connexion with the opening of the port. The details of the programme have not yet been decided, but the general plan is as follows: A tract of the sea from the railway station, covering an area of 300,000 or 400,000 *tsubo*, is to be dredged so as to keep the water from twenty-four to thirty feet deep at low tide. Three piers will be built, and fifteen vessels will be able to come into the port at one time. A canal about one *cho* long and twenty-four feet deep will be dug at a corner of the west port. Part of the work proposed is now being carried on, and the dredging of the port will soon be commenced."

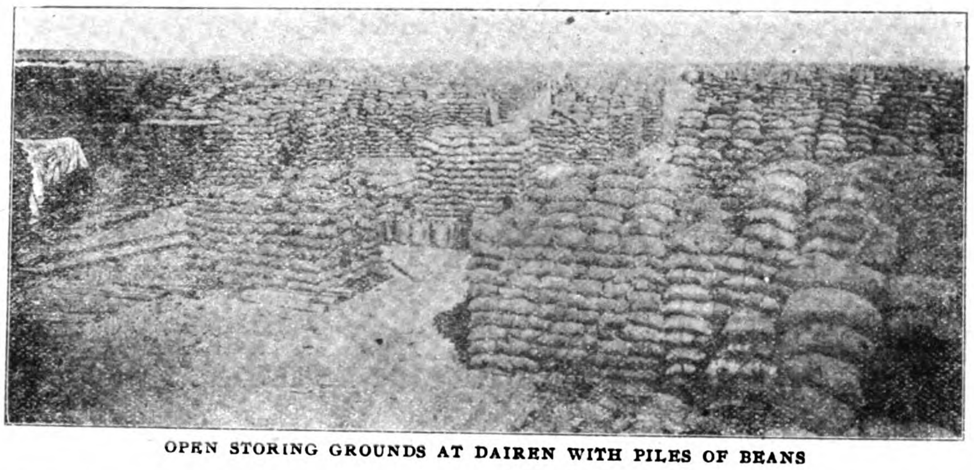
So the opening of Port Arthur is not due to any altruism on the part of Japan, her own best interests demanded it.



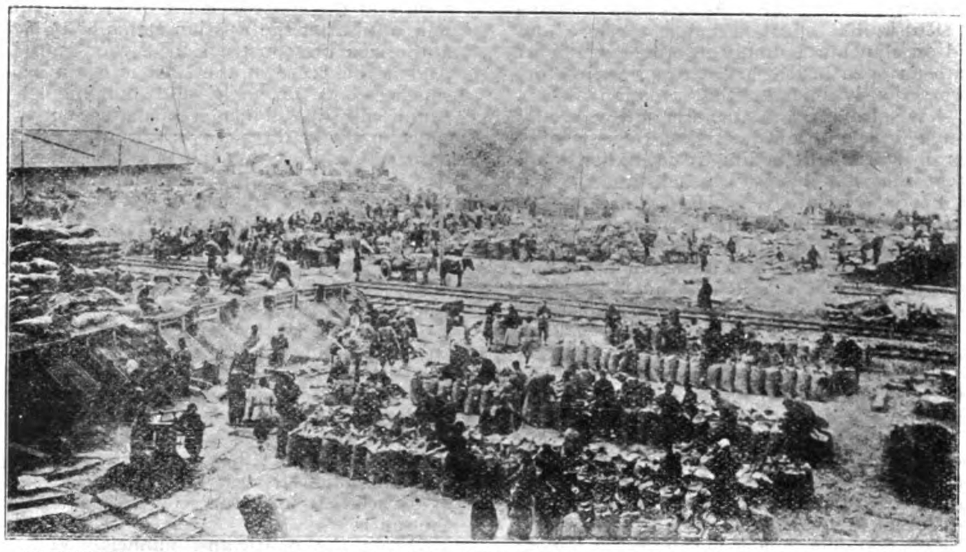
PANORAMIC VIEW OF DAIREN, FROM THE HILLS LOOKING TOWARDS THE HARBOR



DELIVERING BEANS IN CARTS



OPEN STORING GROUNDS AT DAIREN WITH PILES OF BEANS



CLEANING AND RE-SACKING BEANS AT DAIREN WHARVES FOR SHIPMENT TO EUROPE

SANSING, IN NORTH EASTERN MANCHURIA

The exports of Beans from Manchuria to Europe alone is expected to reach $30,000,000 this year, and the demand there for the cake itself is rapidly increasing. The Chinese officials have naturally endeavored to reap some extra profits out of this new demand. A semi-official financing organization was formed at Mukden, to control the purchase of Beans, and corner the crop. Of course this was conducted on purely patriotic lines, to deprive the Japanese of their monopoly. This semi-official interference in commerce brought its inevitable result and a recent telegram from Newchwang states that, owing to the rise in the price of soya beans, many Chinese merchants are becoming bankrupt and a financial panic threatens.

"In this connection, a Changchun telegram states that a Chinese agricultural company, with which the Changchun Taotai is connected, failed to deliver 200,000 koku of beans to Messrs. Samuel, Samuel and Co. and that the latter are claiming a large sum as compensation. This and other failures of a similar nature are greatly disturbing the financial position throughout Manchuria. Messrs. Samuel, Samuel and Co., Messrs. Jardine, Matheson and Co., and Messrs. Otto Reimers and Co., influenced by the fact that the Mitsui Bussan Kaisha exported about 200,000 tons of beans during last year, decided to take up this business on a great scale and entered into a number of contracts with Chinese. The London office of Messrs. Samuel, Samuel & Co., in especial, sent large numbers of orders for the beans to its branch in Manchuria. Consequently, since the end of October many steamers have arrived at Tairen to take home cargoes of beans but have been surprised to find only small stocks awaiting them. This is due to the fact that a number of the Chinese merchants concerned broke their contracts owing to a rise in prices caused by other Chinese buying beans largely in rivalry with them, the quotation jumping from Y2.70 or Y2.80 per 100 kin to Y3. As the attempt to make a corner in beans has continued, the accumulation of steamers waiting for cargoes at Tairen has increased and the quotation has now risen to even Y3.50. It is expected that the Mitsui Bussan Kaisha and the foreign firms will sustain severe losses. It is also feared that the development of Tairen's trade with Europe will be checked and that the export of Manchurian beans to Japan and South China may be interfered with. Furthermore, several beancake factories have been compelled to suspend business in consequence of the rise of prices. The affair, according to the message, is causing considerable anxiety, as it is thought that it may lead the big firms disgusted with the bean trade, while making the Manchurian producers shun big harvests, so that the progress of Tairen and the regions along the South Manchurian Railway may be greatly checked. On the other hand, it is said that it is feared that a continuance of the European demand for Manchurian beans will prove a great blow to the fertilizer market in Japan."

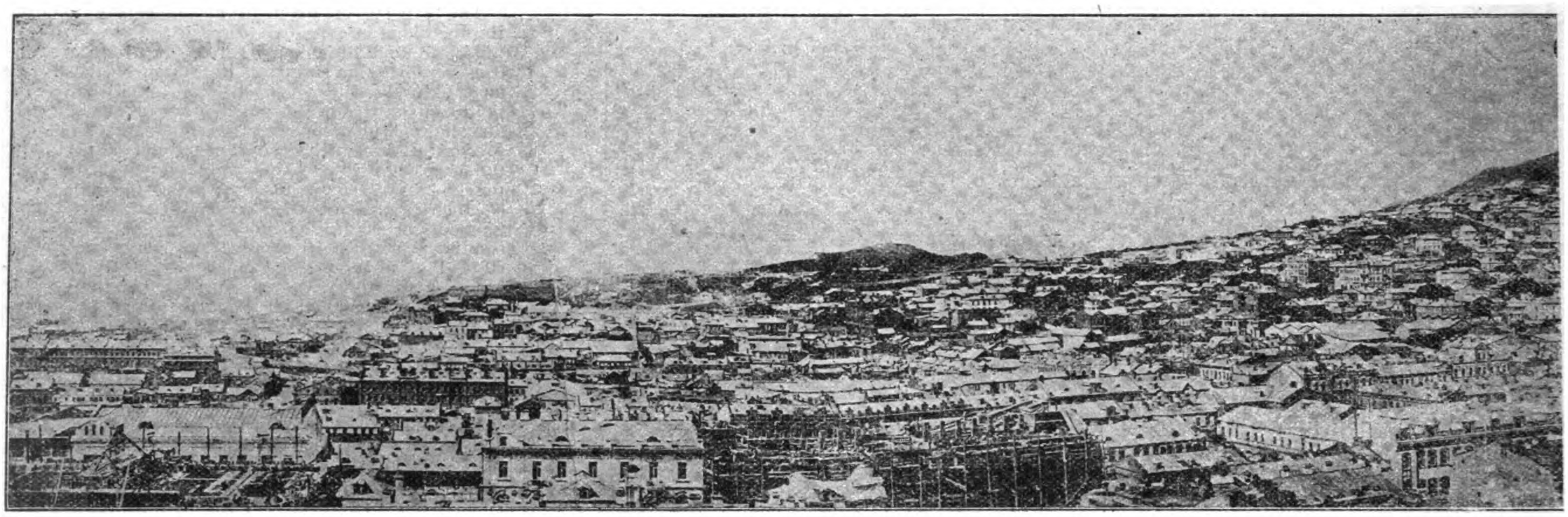
And following shortly after this came the following story, which has since been partially verified by telegrams from Peking:

"A report has been received by the Harbin Stock Exchange of a diplomatic collision in Peking over beans In Southern Manchuria, sums received from the Chinese salt monopoly and other sources of Government finance are devoted in the autumn to the purchase of beans, the Government having pledged itself to sell the beans at a fixed price to a certain British company. When the Mitsui and other outside firms began to buy, offering the agriculturists higher prices, the latter discontinued delivering the beans to the Government and sold them to the new purchasers. Thereupon the authorities became alarmed and the British firm protested. The Viceroy then decided to prohibit the export of beans from Manchuria, in order to compel the peasants and dealers to deliver the whole harvest to the Government, thus enabling the latter to fulfil its obligation to the British firm. But even before this measure was adopted a prohibition was issued against the transport of beans from the place of production to the railway stations. Suddenly Japanese flags were seen hoisted over the good trucks belonging to the Mitsui firm, and before these the Chinese guard stationed on the line respectfully retired. The foreign Consuls acquainted their Ambassadors with the circumstances, and the latter categorically protested against the prohibition of the export of beans, as an infraction of the principle of the Open Door."

So here we have an entirely new phase to the Manchurian situation. If the natural laws of trade are permitted free scope, the complex problem is in a fair way towards a definite settlement, without the intervention of diplomacy. As Japan secured control of the Manchurian markets through the inexorable laws of trade, so will she relinquish it.

The proportion of trade falling to any one country will depend on her exertions to participate in and compete for it by furnishing a market for Manchurian exports. If America desires to regain her lost advantage in the sales of cotton goods to this market, her firms should follow the energetic example of British traders, and get into the middle of the fight and open up a market for Manchurian products in America, and not charge the Japanese with underhand practices to account for their failure. Anything that is worth having is worth going after, and if American firms expect President Taft or J. P. Morgan to secure for them their lost prestige, without some effort on their own part, they will be doomed to disappointment.

(Continued on page 486.)



PANORAMIC VIEW OF VLADIVOSTOK

THE AMUR RALWAY

Two hundred million dollars gold for a railway 1,326 miles long, or $150,000 per mile, for purely commercial reasons.

"When the cat is to be let out of the bag, commend me to a Russian newspaper for the uncompromising manner in which it is performed," commented Lord Curzon some 15 years ago. And today the same rule applies, and is emphasized by the article in the *New York Herald* of December 19th, ulto., by its special correspondent who recently completed a trip down the Amur River.

The Earl of Ronaldshay in his work "On the Outskirts of Empire in Asia," written in 1904, quotes one of the same Russian newspaper editors interviewed by the *Herald* correspondent in 1909. "Is it possible, asks the *Pri Amur Viedomosti*, that the Americans imagine that Russia has spent so much treasure and blood on Manchuria simply in order to convert it into an open bazaar? Do American editors really seriously imagine that Russian officers who have traversed Manchuria through and through in peril and suffering, constructing the railway and defending it from hordes of Boxers, that the Russian Cossacks and soldiers who have performed miracles of valor in the last Chinese war—modestly termed troubles—have suffered all this, and fallen on the field of battle, for the sake of foreign commercial firms? It was not for this that Russia has done what she has. In one word, we have fought and labored in Manchuria, *not* for the sake of open doors."

And if Russia expended nearly $150,000,000 gold on her Manchurian Railways, and an equal amount on the building of Port Arthur, Dalny and Harbin, including over $1,200,000 as bribes to secure the lease and concession, as a preliminary to her monopoly of Manchurian trade, what object has she in view now, by the expenditure of an almost equal amount for a route to the sea 600 miles longer via the Amur River? Russian officialdom suavely assures the world that purely economic reasons compel the opening up of this barren and bleak corner of their domain, but the Russian newspaper, true to its traditional reputation, emphatically contradicts the government and corroborates foreign suspicion that the Amur road is to be built for purely strategic reasons. Against what enemy? Japan first, and China afterwards. Japan did not insist on the Antung-Mukden reconstruction, and the concession for the Kirin-Hunyun line, until after the Russian Duma had officially authorized the construction of the Amur Line. And if the peace of the East is again broken, which seems probable—the building of the Amur Railway will in a large measure be responsible for the outbreak of hostilities, as Japan's preparations in Korea and Southern Manchuria are, in the opinion of a competent Russian observer, based less upon a desire to attack than to defend.

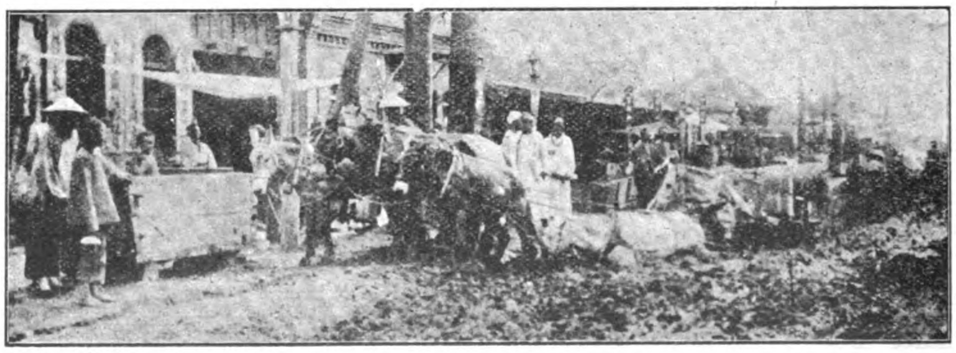
The *Herald* correspondent says:

"My impressions of a journey replete with interest at every step fall into two main groups. One is the attitude of Siberia toward the belated effort of the Russian government to realize an undertaking which, in the opinion of the opposition elements, would have eliminated the most unfortunate and depressing chapter in modern Russian history had it not been superseded by the construction of the Chinese Eastern Railway. The other is the trend of public opinion from Irkutsk to Vladivostock in its relation to Japan's feverish activities in the south.

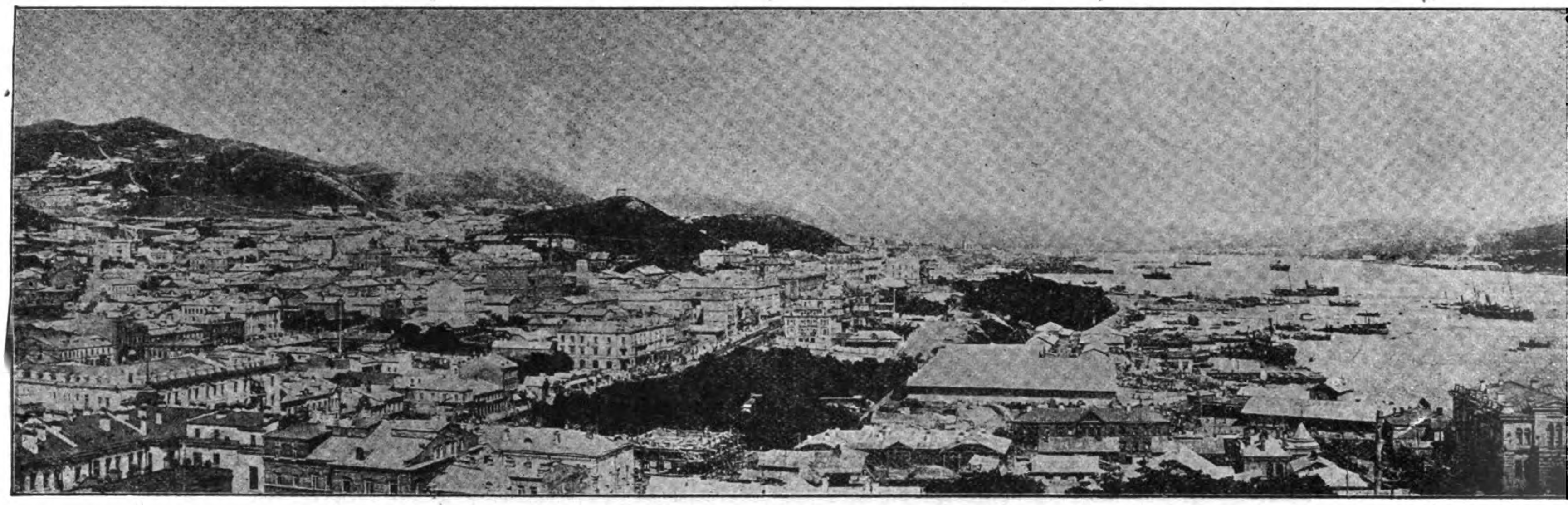
"From the politicians, publicists and journalists of Eastern Siberia I gained a very fair idea of how the country regards the determination of the authorities to devote upward of four hundred million roubles to the opening up of a direct route through undisputed Russian territory, from Stretensk to Khabarovsk.

"Mr. N. K. Volkoff, the kadet Deputy from the non-Cossack section of the Zabaikalye in

H. E. CH'EN CHAO-CHANG, GOVERNOR OF KIRIN PROVINCE, FIRST DIRECTOR GENERAL OF THE PEKING-KALGAN RAILWAY



CHANGCHUN, THE GREAT BEAN CENTER OF MANCHURIA: A MUD HOLE ON THE MAIN THOROUGHFARE



an interview which I had with him at Chita, where he was trying to obtain permission to address a meeting of his electorate, assured me that the Amur Railway was a non-party question in those regions. In the comparatively rare instances where opposition was expressed to the enterprise this opposition was based not upon a fundamental difference of opinion, but merely upon grounds of financial expediency, some holding that the national exchequer was in no fit state to stand this additional and enormous strain in the wake of the sacrifices entailed by the recent struggle.

"Precisely the same view of the situation was expressed by the editor of the leading Chita paper, the *Zaboikalskaya Nov;* by Mr. A. P. Silnitsky, the proprietor and publisher of the *Priamurye* at Khabarovsk, and by nearly every other newspaper man or politician with whom I had occasion to discuss the subject. A partial exception was furnished by Mr. V. Panoff, once a naval officer, who is a resident of thirty years' standing, a sinologue and profound scholar, proprietor of the newspaper Dalny *Vostok* at Vladivostok. Thoroughly conversant with Eastern Siberia and the Far East generally and with the Maritime and Amur provinces in particular, he is peculiarly well fitted to consider the problem in all its bearings.

"'Frankly,' he said, 'I am not sanguine as to the economic advantages of the new line, but at the moment it appears a strategic necessity. Alone, however, it is quite inadequate. In order to be of permanent value it must be reinforced by the creation of a new fleet in Far Eastern waters strong enough to cope with the Japanese, and it must be admitted that there seems to be small likelihood of this happening for many years to come.

"'In its economic relations the Amur Railway may confer seeming benefit upon a comparatively narrow strip of territory bordering the river of the same name, but beyond the shadow of a doubt the undertaking is destined to remain for many years a heavy burden on the treasury. Think, too, of the cost of equipping a powerful and independent military base in the Far East and the maintenance of a land force there really competent to oppose with any hope of success the efforts of an enemy to seize isolated portions of our Far Eastern dominions before reinforcements could hasten to the scene of operations from our centre. This point is important in view of the difference in the length of Chino-Japanese lines of communication via Corea and South Manchuria.

"'It is equally obvious that we cannot dispense with a fleet equivalent in the number of its units and its composition to that of any possible adversary. Land defence will remedy only the condition which has been brought about by ourselves in consequence of the opening of South Manchuria in the flank and rear of our position in the Far East. But when Japan assumed a permanent strategical position against us in Corea, if we do not wish to see from one side an entirely unopposed movement thence of Japanese armies in the direction of our borders and from the other Japanese descents upon our coast line, resulting in the wedging in, so to speak, of the whole Ussuri region as in a vice, it would certainly be senseless for us to remain without a fleet capable of offence and defence.

"'Then,' I asked, 'do you charge Japan with further aggressive designs upon Russian territory in the Far East?'

"'When Russia committed the monumental blunder of taking Port Arthur, creating Dalny and building the South Manchuria Railway,' replied Mr. Panoff, 'I foretold almost in detail what would be the outcome. As I have written in my recent brochure on the subject, a second war in the Far East will hang over us as an abiding menace, not only in the event of complications in the Far East itself, but also in connection with those collisions of conflicting interests of the Powers in Europe, which are nowadays so frequent. For Russia in the Far East this is a sore and open spot which none of her serious antagonists or rivals in international politics can afford to overlook, nor will they let slip any convenient opportunity of tying her hands by means of her position in the Far East.

"'As regards Japan, I would not be quoted as declaring that she deliberately contemplates a policy of aggression against us. In my opinion Japan's preparations in Corea and Southern Manchuria are perhaps based less upon a desire to attack than to defend. Doubtless Japan anticipated the possibility of Western intervention in Corea and the demand for a protectorate there of the Powers. Thus the more firmly she is established in the peninsula the less likelihood will there be of any such intervention.

"'Again, it is obvious that in the event of such united action against Japan Russian co-operation from the land side would be indispensable, so that any Japanese scheme of defence in Corea and Southern Manchuria must take into consideration Russia's position in the north in conjunction with the strategic potentialties of the Amur Railway.

"'On her part, Russia, who made the mistake before and during the war of persistently regarding Japan as an Asiatic Power in the military and naval sense, is at last fully alive to the truth, and the necessity of strengthening the defences of Eastern Siberia is theoretically recognized, although very little of a really practical nature has so far been accomplished.'

"Mr. Panoff estimated that there could not be more than one hundred and fifty or two hundred thousand troops of all arms in that part of the country, a force totally inadequate as a guarantee against the attack of a skilful and resolute foe. I am aware that many amateur foreign observers have assigned to Eastern Siberia a far larger garrison than the above, but it would be impertinent to question the knowledge of a man like Mr. Panoff in this field.

"'Japan,' continued Mr. Panoff, 'naturally anticipates the recuperation of Russia in the course of time, and with her customary farsightedness is making preparations for every conceivable emergency, both in Corea and Southern Manchuria. Japan understands as well as we do that, for many years at any rate, her only possible opponent on the continent will be Russia, while the latter, on her part, will hardly dream of entering upon a second policy of aggression single handed.

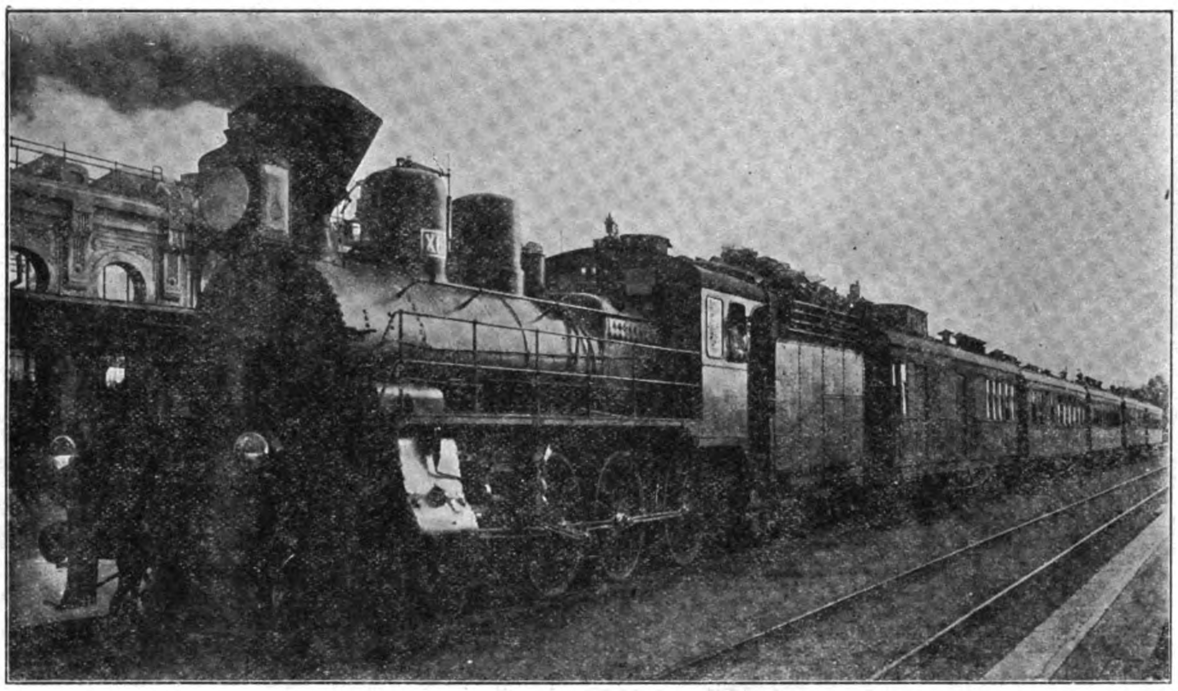
"Still, as the same publicist has pointed out in his recent masterly summary of the past and present situation in the Far East, the Siberian boundary under Russia's very eyes is being converted into a continuous and unbroken line of Japanese bayonets. The strategical position of Manchuria, created by Russia's own policy of extending the Chinese Eastern railway south to Port Arthur and Dalny, strengthened by the new Japanese line from Antung to Mukden and the Chinese line to Hsinmintun, has actually transformed that boundary into an extensive road for offensive action against Russian confines and has invested it with the qualities of a possible battering ram, destined, as he puts it, at a given moment to shatter the weak link between the Zabaikal and Ussuri regions and to cut off Russia's advance supports in the Priamurye from her political and strategical rear.

"I cannot say that I detected anywhere in Eastern Siberia tangible evidences of active hostility toward the Japanese, who manage to make a comfortable livelihood, in gradually growing numbers, from Chita to Khabarovsk and Vladivostok, as barbers, photographers, laundrymen, small traders and, if the truth must be told, to no inconsiderable degree as caterers of vice.

"At the same time it was the exception to meet anybody who did not regard Japan's progress in Southern Manchuria with suspicious eyes. One alarmist at Vladivostok stated it as his firm conviction that Japan would capture that port in ten years at the outside. The better informed, however, are fully alive to Japan's political and economic embarrassments vis-a-vis China and the Powers.

"While it is recognized that China has no special love for the Japanese, it is equally patent that she has no reason to be grateful to Russia, and it is this factor of the situation which causes belief in the possibility and probability of a joint Japanese-Chinese movement against the Zabaikal, Amur and maritime provinces in the near future.

"Although Mr. Panoff in his conversation with me declined to share the popular belief in the intention or ability of China to win back by the sword territories which she ceded to Russia under the Aigun treaty, and characterized the striking expansion of the immigration movement in Mongolia and along the right bank of the Amur as purely economic, he, together with other writers, has called attention elsewhere to the fact that Mongolia has begun to threaten the Zabaikalye; that Chinese lines of railway are being built or projected to the very banks of the Amur; that a Chinese town



THE CHINESE EASTERN EXPRESS TRAIN PULLING OUT OF HARBIN

is contemplated at the mouth of the Sungari; that the middle stream of the Amur itself is open to Chinese steamship navigation: that the portion of the Manchurian railway which remains in Russian hands in the west is said to be already passing under the supervision and control of Chinese garrisons. In other words, it is contended that the 'rights recovery' or 'Young China' movement is nowhere more clearly defined and insistent than as against Russian pretensions.

"In spite of the provisions of the Aigun treaty, for example, the Chinese authorities have presumed to impose duty upon Russian goods on the right bank of the Amur and on the Sungari, the protest of the Russian Minister in Pekin being ignored.

"If Mr. Dick could not keep King Charles' head out of his memorial, it is equally impossible for the majority of Russians in the regions under review to refrain from ascribing many of these sinister symptoms to Japanese influence. China, it is said, under the aegis of Japan, is following the line of least resistance, which is Russia.

"I can myself testify that quite a small city has already sprung into being immediately opposite Blagoveshchensk, on the Chinese bank of the Amur, at a spot where, as recently as the Boxer outbreak, there were few signs of human habitation. I am told that the Chinese are energetically working on a military line in the same direction, while on the Russian, or left bank, there is not so much as a single railroad, since it is as yet premature to speak of the Amur line, which, under the most favorable auspices, cannot possibly be finished in less than seven years.

"As intimated above, the Chinese garrisons in Manchuria are growing, both along the line of the Chinese Eastern Railway and neighborhood and that of the Mukden-Harbin branch. Against whom, it is asked, is China strengthening her northern boundary?

"The facts concerning the Amur Railway can be very briefly summarized. The nominal starting point of the new line is at Koinga, a station situated between Nerchinsk and Stretensk, on the banks of the Shilka, which flows into the Amur, and its terminus is to be Khabarovsk, at the confluence of the Amur and Ussuri rivers, a distance of approximately 2,200 versts, with a branch to Blagoveshchensk, perhaps 120 versts from the trunk line.

"Undoubtedly, too, other smaller branches will be pushed out from the main line to the Cossack stations on the banks of the river, and one of these, at Chasovinskaya, between Stretensk and Blagoveshchensk, is now completed and is being utilized for the conveyance of materials to the trunk line, about twenty or thirty versts away. Large stacks of rails, sleepers, bolts, rivets, nails, etc., together with a considerable quantity of rolling stock, bear testimony to the fact that work is actually proceeding, though no rails have yet been laid on the trunk line.

"At the time of my visit about six thousand Russian laborers were employed on the construction work, and from the spring of next year it is affirmed that the taiga (Siberian bush) will be roused by the arrival of fresh bodies of men, to the number of fifteen thousand, in addition to several hundreds of constructors, contractors and clerks. Although the exclusive employment of Russian labor, as far as the actual construction work is concerned, will involve an enormous increase of the cost, the Duma nevertheless decided that Chinese labor should not be made use of, and as the Russian population of the district is itself too meagre to furnish the number of hands required, the bulk of the latter has to be imported from European Russia.

"The engineering difficulties to be surmounted are very great. Even on horseback it is not possible to cover more than five versts an hour in many places. The scenery, however, is superb, and when the line is finished it will certainly become popular among travellers. Gold has already been discovered by the surveyors of the route in fairly large quantities, and some of the diggings are being worked. The precious metal is for the most part as fine as dust and demands very highly perfected machinery for its successful exploitation. Other portions of the area being opened up by the railway are reported to be suitable for cattle raising.

"In the light of the fact that the operation of the Siberian Trans-Baikal and Circum-Baikal lines involves an annual deficit of twenty million rubles and that the Priamur Province generally

THE AMUR RAILWAY, AMUR RIVER STEAMERS TIED UP FOR THE WINTRE

IRKUTSK, THE CENTER OF RUSSIAN POWER IN ASIA

entails a further drain upon the exchequer, it would be foolishly optimistic to reject the evidence of those on the spot with reference to the economic prospects of the new Amur Railroad. These witnesses are often persons, as in the case of Mr. Panoff, in other respects supporters of the government and in no sense to be confounded with the kadets, social democrats and social revolutionaries, from whom pessimism might be anticipated, but who, for the most part, when they live in Eastern Siberia, are in favor for once of a government railway project from provincial and sectional rather than imperial motives.

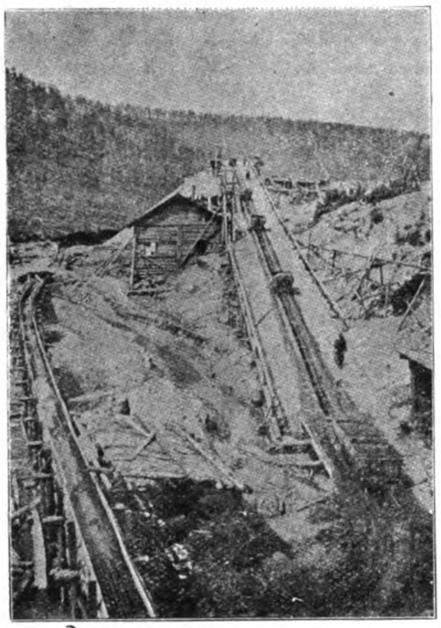
"The consensus of disinterested opinion would therefore appear to warrant the conclusion that the determination of the Russian government to expedite the building of the line at a moment of unusual financial stringency is dictated, despite official assurances to the contrary, rather by strategical than economic considerations. It is a race in railroad construction. The rebuilding of the Antung-Mukden line, in particular, convinces most Russians that Russia cannot afford to dally with this question.

"Japan proposes to finish the work in two years, and with the completion of the bridge across the Yalu linking the Corean and South Manchurian railway systems she will have at her disposal a direct and unbroken line of communication virtually from the shores of Dai Nippon to the very heart of Manchuria, debouching on the flank of the sole Russian line which unites the Far East with Russia proper.

"'Then,' as one Russian paper writes, 'our Chinese road will lose the commercial significance preserved for it by the Portsmouth treaty. Should complications arise with Japan it can be cut at will by the Japanese advance guards freely conveyed by rail to this point. Thence the route is optional either to the east or west. In this manner Japan has securely strengthened herself on our flank and the road to the Primorsk region, where there is not a single hopeful point of support, is open. The transfer of the Fushun mines to the full ownership of Japan testifies to the fact that Japan stands upon firm ground and that a base for further operations is prepared for her.'

"Prone as is the typical Russian mind to analyze and disparage everything Russian, it behooves the outsider to qualify to some extent the gloomy forebodings of the critics I have quoted. In spite of all the sins of omission and commission charged to the government, the fact remains that there is progress in Eastern Siberia palpable to those who visited the country immediately after the war and who visit it now.

"The population of such towns as Chita, Stretensk, Nerchinsk, Blagoveshchensk and Khabarovsk is steadily increasing; the general average of comfort and well being is far higher



AMUR RAILWAY: GOLD WASHING PLANT ON THE AMUR RIVER

than in European Russia; the foreigner is struck by the health and good looks of the rising generation; everywhere is manifested the popular zest for education, and the authorities, inadequately it may be, are encouraging immigration.

"I am convinced that with the construction of the Amur railway it should be worth while for American capitalists and business men to devote more attention to the Amur and maritime provinces of Eastern Siberia with a view to the development of the vast natural wealth of the country. Coal, gold, silver, iron, lead, naphtha, lumber, the fisheries, the pelt industry and agriculture—all these branches should offer inducements to enterprising investors. That there are serious obstacles to be overcome cannot be denied, but when one notes what is being accomplished by the Germans in Eastern Siberia and Northern Manchuria it is difficult to resist the conclusion that we are losing opportunities.

"Withal the conviction forces itself that had the heritage of Eastern Siberia fallen to America or Great Britain, with its enormous potential resources, it would not now, after three hundred years of ownership, contain a population, both Russian and native, of only a million and a quarter, scattered over an area of one million four hundred thousand square versts, approximately equivalent to three Frances without the colonies. The cry of the 'old resident' (starozhi) of Siberia is that St. Petersburg should listen to the voice of those who live and labor in the land, as is the case under English and American colonial administration, whereas Russian Far Eastern questions are for the most part decided by the departments at St. Petersburg, which seem to be destitute of first hand knowledge of the needs of the region—as witness the abolition of the Vladivostock free port which was an unsolicited gift to Japanese Dairen."

SNUG HARBOR AT PORT BANGA

The Port Banga Lumber Company of Port Banga, Mindanao, has developed a snug harbor at its mill site and, with the addition of a lighthouse installed on the summit, it is easily and safely available to steamers entering and leaving the harbor at night. The company's dock is 150 feet in length with 20 feet of water at low tide alongside, and with the mill and yard close to the dock it makes the most desirable mill site in the Philippines. The harbor is snug with plenty of water and good anchorage. North German Lloyd steamers find no difficulty in entering the harbor and tying up at the dock, while the Compañia Maritima steamers call regularly twice each month.

BLAGOVESHCHENSK, THE METROPOLIS OF THE PRIAMUR

RAILWAYS IN MONGOLIA

China's Ambitious Plans to Preserve and Develop this Vast Territory

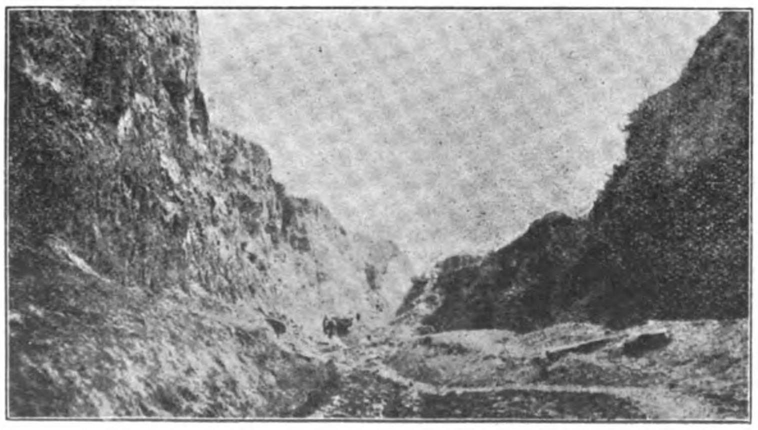
With the completion of the Pekin-Kalgan Railway, opening up communication with the Mongolian borderlands, many new extensions to the line are being projected. If all the schemes are carried into effect, Kalgan will one day be one of the most important railway centres of the Empire. The right to build a railway across Mongolia from Kiachkta through Urga to Kalgan has long been a cherished dream of Russia, and her diplomats at Peking have many times urged China to grant the concession. Ten years ago the Russian railway program for the peaceful invasion of China included several ramifications to this central scheme, chief of which was a branch leaving Kiachkta crossing Mongolia, Shensi, and Szechuen, terminating at some point in connection with the proposed northern extension of the French Yunnan road at Chengtufu. This bold and seductive scheme was the natural outcome of the combination of Rusrian and French railway plans in Asia. Ten years ago such a plan had some hope of ultimate sealization, to-day it must remain a dream, as aside from the enormous financial and engineering difficulties, China will never give her consent. Yet Russia has never entirely abandoned her original designs for the penetration of Chinese Central Asia.

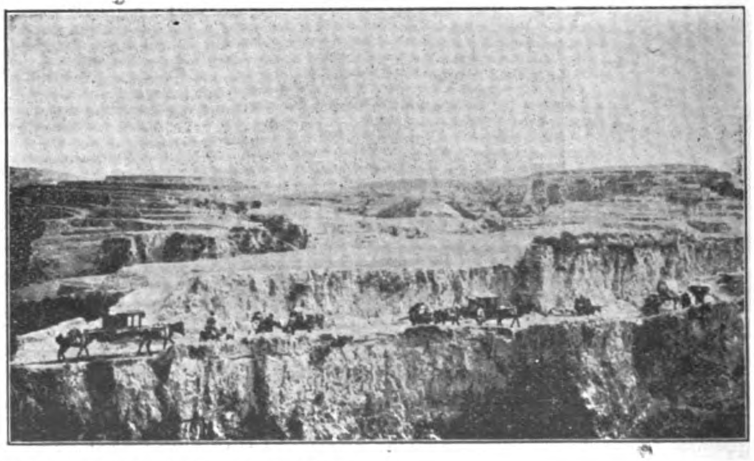
RUSSIAN RAILWAY ACTIVITY.

The great Trans-Siberian road was still unfinished when the scheme for a southern or Central Asian parallel line was proposed. This line was to leave Orenberg and cross the Turgui country and the Kirghiz steppes in an almost due easterly direction to Barnaul in southeastern Tomsk, or within easy communication with Kobdo, in Chinese Mongolia. From Barnaul the line was to be carried still farther east, skirting the Mongolian border until a junction was made with the Trans-Siberian Road at Nijni Udinsk. The unproductiveness of the Turgai country and Kirghiz steppes prohibited the execution of the scheme and for some years the project has remained dormant. But almost coincident with the recent announcement of the scheme to double track the Trans-Siberian road comes the report from St. Petersburg that the Southern Siberian Railway Company has been organized for the purpose of constructing a line starting from Omsk and skirting the Irtish River to Pavlodar, where one branch will continue to Semapalitinsk and another to Barnaul. The total length of the proposed road is over 750 miles and the cost is estimated at over £5,000,000. From a strategic viewpoint this will bring the Russians within a few days' march from Kobdo, the Chinese frontier post of North Western Mongolia, and at the same time open up an immensely fertile and valuable mineral country. With previous experience as a guide the Chinese Government naturally views such a scheme with some concern and

H. E. CHEN KUEI-LUNG

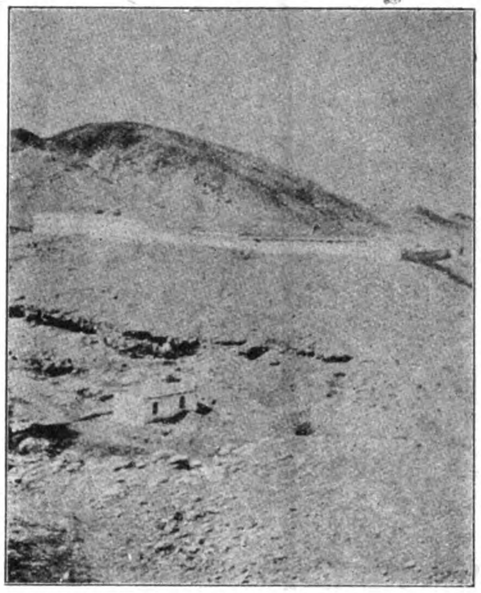
VICEROY OF CHIHLI, THE METROPOLITAN PROVINCE, PROMOTED FROM THE VICEROYALTY OF THE HU-KINANG, TO CHIHLI, ON THE DISMISSAL OF H. E. TUAN FANG





(Denniston & Sullivan, Photographers.)

THE ROAD TO LANCHOWFU: ACROSS THE LOESS REGION OF SHANSI



THE RUSSIAN OUTPOST COMMANDING THE ROAD TO KASHGAR, FORTIRKESHTAN TURKESTAN

steps are being taken to have a preliminary reconnaissance made for a Chinese railway to extend from Kalgan into the threatened district. It is reported that a line traversing Mongolia from Kalgan, through Chahar to Sairussu and thence to Uliassutai has received serious consideration and delegates appointed to survey and report on its feasibility. The distance is about 1,000 miles from Kalgan to Uliassutai.

Russian military railway and commercial activity along the Mongolian borders of the Empire has for many years past seriously alarmed the Peking authorities, and, as a remedy, many vague and visionary railway schemes have been proposed as the only way the distant provinces can be saved to the Empire. The Russian Central Asian military railway terminating at Andijan already threatens the province of Sinkiang or Chinese Turkestan, and as a consequence the Chinese frontier posts of Ilifu, Aksu and Kashgar have been heavily reinforced.

CHINESE PROJECTS.

A recent native report from Peking states as follows:

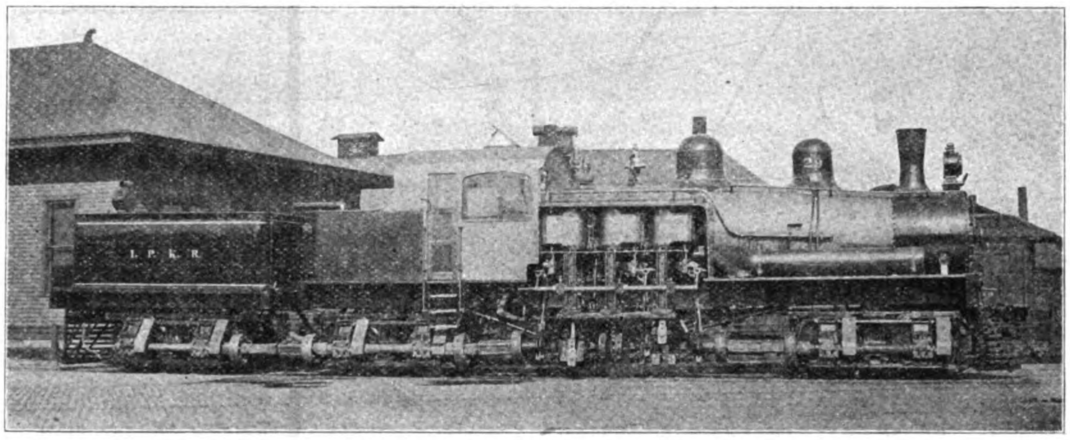
"The Minister to a certain country has addressed a long letter to the Central Government on the danger of Ili, citing instances to prove a certain Power's designs on that Dependency, and declaring that if the *laissez faire* of the officials be allowed to continue for another few years it will be worse than Manchuria."

To this constant danger of the remote provinces is traceable many of the railway schemes which find currency in Peking official circles and echoed in the native press. The following recent news items have their foundation in political scares:

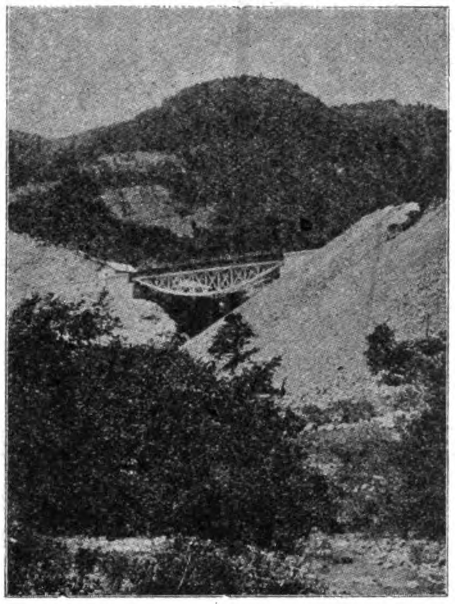
"The President of the Board of Posts and Communications, after consultation with the Government, has decided to raise funds for the purpose of constructing a railway from Tih-hwa (Urumtsi) in Sinkiang to Kurun (Urga) in Mongolia and one from Ili via Tih-hwa to Lanchow (Kansu). He has wired the new Viceroy of Kansu to make the necessary investigations after he has taken over the seals of office.

"The Yuch'uanpu proposes to extend the Kalgan-Suiyuan Railway to Ili and also to connect it with the Loyang Tung-kuan Railway in Shansi.

"A Chinese telegram says that the Government intends to relieve the famine sufferers in Kansu by utilizing their services in building the railway from Kansu to Chinese Turkestan (Ili) and that the scheme will be carried out after Viceroy Chang Keng has assumed office."



SHAY GEARED 125-TON LOCOMOTIVE, LIMA LOCOMOTIVE & MACHINE CO., IN USE ON THE PEKIN-KALGAN RAILWAY



A BRIDGE ON THE RUSSIAN CENTRAL-ASIAN RAILWAY

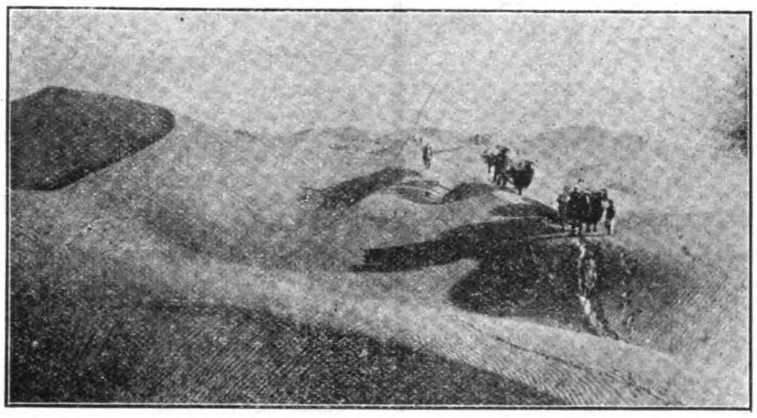
These extensive railway schemes are published in the Chinese papers as a matter of course, without comment, and no thought apparently given to cost or difficulties of construction. In these few items already noted, there are over 3,800 miles of railways to be constructed for strategic purposes.

	Miles.
Kalgan-Uliasutai Railway....	1,000
Urumtsi-Urga Railway......	1,200
Ili-Lanchow Railway........	1,600
	3,800

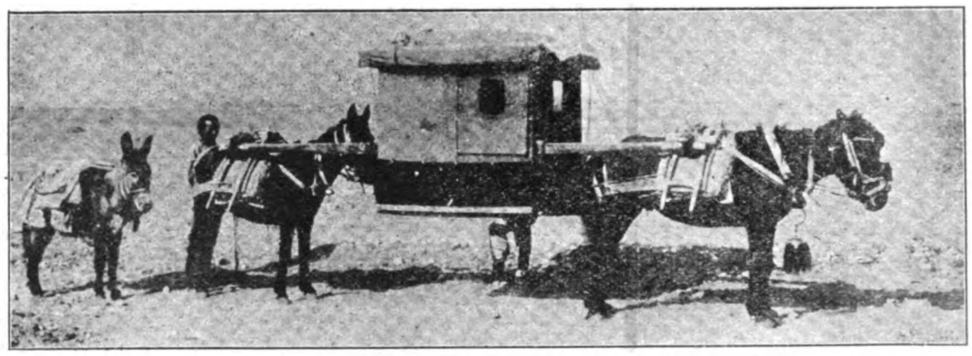
At a cost of $40,000 gold per mile, the total expenditure would be $152,000,000 which, spread over a period of ten years, would be over $15,000,000 per annum. Such an expense could hardly be justified with the present state of the finances. So while there is little probability of the general scheme being carried into effect, there is evidence that the most important or the line to Ili, will be pushed ahead as rapidly as finances will permit.

KALGAN-SUIYUAN EXTENSION

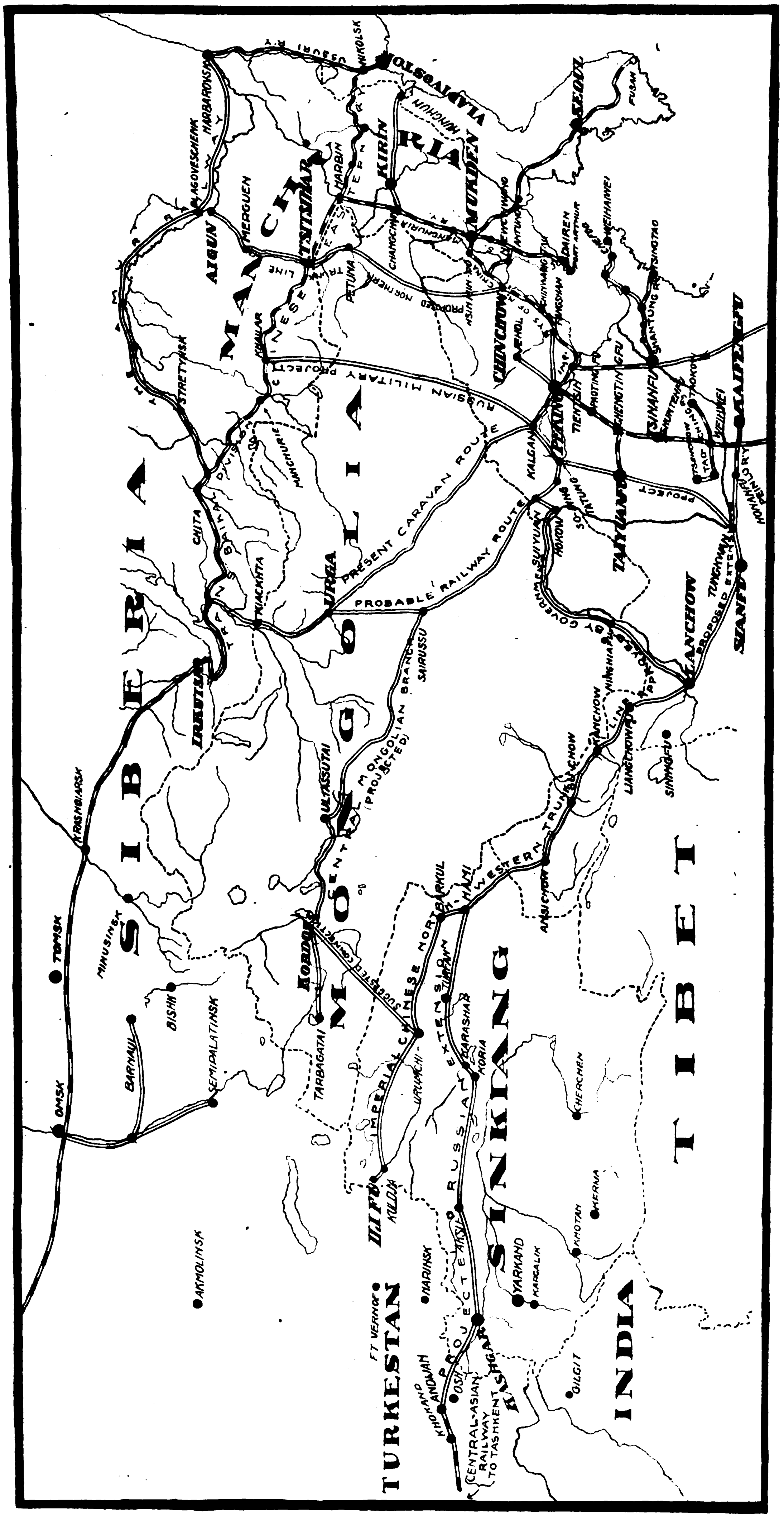
The recently completed Kalgan road is to be extended via Tatungfu and Sopingfu to Suiyuan in the northwest of Shansi Province near the Mongolian border. The survey of this road has been completed. It will be about 230 miles long, and the estimates submitted to the Board of Communications places the cost at about Taels 17,560,000 or roughly $50,000 to $55,000 per mile. The necessary capital will be taken from the surplus profits of the Imperial Railways of North China in the same way as was done for the Peking-Kalgan road. The construction of this extension has already been



(*From Travel.*)
THE ROADS OF SINKIANG: ACROSS THE TAKLA-MAKAN DESERT



ACROSS EASTERN MONGOLIA: CHINESE PONY PALANQUIN



MAP SHOWING RAILWAY LINES PROJECTED IN MONGOLIA

authorized and it is expected that actual work will soon be commenced under the direction of H. E. Jeme Tien-yu. It is hoped to complete it in two years. From Sui-yuan is planned the extension to Urga, a distance of 600 miles across the Mongolian desert. Built under Chinese supervision this line should not be very costly, as there are no great engineering difficulties to overcome.

Consul-General Edward T. Williams, of Tientsin, recently furnished the following information concerning the proposed building of the Kalgan-Urga Railway. As the Kalgan line has been built with the surplus profits of the Pekin-Mukden line, it is proposed to employ future earnings of the latter line in the extension across Mongolia to the Siberian frontier. The Mongols are mostly nomads, and depend upon their flocks and herds. It has been estimated that 25,000 horses, 10,000 head of horned cattle, 250,000 sheep, 330,000 hides, and a considerable quantity of furs are exported every year from Eastern Mongolia, while from North-Western Mongolia as many as 70,000 horses, 30,000 camels, and 1,500,000 to 2,000,000 sheep are exported. With the completion of the railway to Kalgan the appearance of long trains of camels in the streets of Peking will become more rare, and as the line penetrates into Mongolia, more and more of the traffic will find its way by rail. Such a line will also do for Mongolia what our transcontinental lines have done for our Central and Western States. Few persons realise what a vast territory there is here for settlement and development. Its area embraces more than 1,300,000 square miles, and the population is not quite two to the square mile. The lands belong to various tribes of Mongols, each of which has its own chief and its own organisation. The people are not unlike our Indians, though their culture, on the whole, is of a higher type, as is indicated, indeed, by their pastoral life. Chinese settlers are continually crowding into these territories and purchasing lands from the Mongols. New counties are continually being organised along the Chinese frontier, and the jurisdiction of the Chinese authorities being thus steadily extended into the dependency. The construction of the proposed railway will doubtless hasten the settlement of the country, the cultivation of its fertile valleys, and the exploitation of its extensive forests and its mines. Communication with Europe will also be facilitated, inasmuch as the connection with the Great Siberian Railway will be made not far from Lake Baikal, and the time between Peking and New York—now about twenty-five days *via* Moscow and London—will be reduced to about twenty-two or less.

THE TRANS-MONGOLIA RAILWAY

The Kiachta-Urga-Kalgan or Trans-Mongolian Line was originally conceived by Russia to serve her political and commercial designs, and although China now proposes to build the line within her own territory, Russia desires participation in the enterprise. The route has been partially surveyed and numerous reports submitted to Peking. The chief obstacle to its construction is the alleged lack of water on the Gobi desert. Mr. Archibald Little in his book on The Far East, however, states as follows:

The 200 miles wide stretch of undulating land along the northern border, which is traversed by the high road between Kiachta and Urga is distinguished by abundance of trees and water. But south of Urga, which is situated 4,200 feet above sea-level, the gravelly steppe begins, a steppe in part flooded with fragments of agate and chalcedony, and the confines of the Gobi are entered; the soil still support scattered desert shrubs and water is obtainable by well-sinking. Here is no remorseless sand-waste with its waves of moving sand such as are found to the south and west of the Altai and its eastern prolongation the Gurhan Saikhab, the range that may be looked upon as the backbone of the plateau, and which forms a rough dividing line between the Eastern and Western Gobi. The Eastern Gobi slopes from its marginal mountains to a depression in the centre, elevated only 2,400 feet above sea-level, probably the dry bottom of an ancient salt lake, into which the now dried-up watercourses, with which the ravines of the projecting rocky ridges that traverse the steppe are scored, drained at a time prior to the recent desiccation of the country. South of this depression the land rises again to 5,400 feet, as the Alpine range is reached which limits the steppe in this direction of China. The ranges which wall in China on the north and are 100 to 150 miles in through-diameter are Alpine in character and contain many fertile valleys, all occupied by Chinese settlers; such valleys we find south of the frontier mart of Kalgan, 2,800 feet above the sea, built on the southern slope of the mountain range, through which breaks the narrow pass leading up by a farther ascent of 2,000 feet to the plateau which commences 10 miles to the north, the only road giving easy access, by a comparatively gentle descent to the wide Peking plain below. This descent from the plateau into the low-lying plain of Chihli, via Kalgan, is by the most gradually sloped and easily traversed of all the main roads leading from Mongolia strongly fortified by the Chinese; it is also the route in which the transition from the rugged mountain rampart to the level grass-covered table-land is most striking and abrupt. The Peking plain which slopes seawards from the foot of the mountains at the imperceptible inclination of about one foot to the mile, abuts directly upon the cliffs of the barrier range, giving unmistakable evidence of these having once formed the sea-coast of the to-day still steadily narrowing gulf of Pechili.

While China is proposing to build the road, Russia is also preparing to push out a branch from the Trans-Siberian Line near Lake Baikal, to the frontier mart of Kiachta. The distance along the Selenga valley to Kiachta is only a little over 100 miles. The line would be a commercial success and promote the trade of Mongolia with Trans-Baikalia.

The main road from Sui-yuan across Mongolia to Urga, is about 600 miles, and another 175 miles to the border at Kiachta. A rough estimate submitted to the Board of Communications calls for Taels 20,000,000 or approximately $25,000 per mile, and six years time to construct the line beyond Sui-yuan to Urga. Under Chinese supervision this figure, while low, compares more than favorably with railway costs in other more difficult sections of the Empire. With a construction progress of 100 miles a year or six years to complete, this would entail an expenditure of about Taels 3,400,000 per annum.

It is reported that foreign capitalists are ready to loan the necessary funds for constructing this line, whenever China signifies her willingness to negotiate terms.

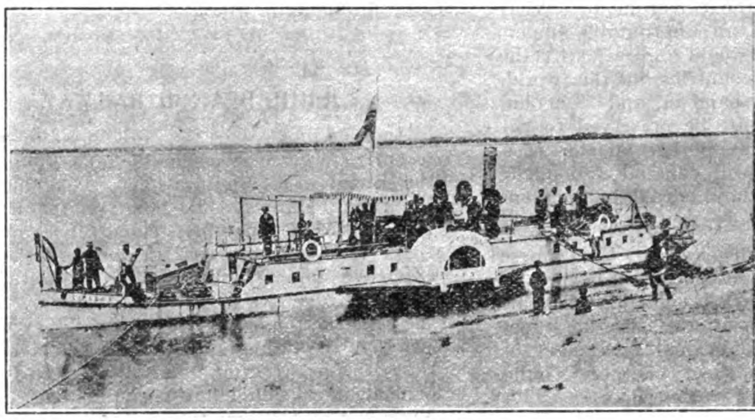
The extension of the Kalgan Road to Sui-yuan may therefore be accepted as the first step in China's railway program for the construction of three important trunk lines. The Kalgan-Kiachta or Trans-Mongolian and the Kalgan-Uliassutai or Central Mongolia roads have already been outlined. The third and most difficult, and from some points of view the most important, is undoubtedly the great Central Asian project or the North-Western trunk line through Kansu to Chinese Turkestan which has been approved by the Government.

THE CENTRAL-ASIAN PROJECT

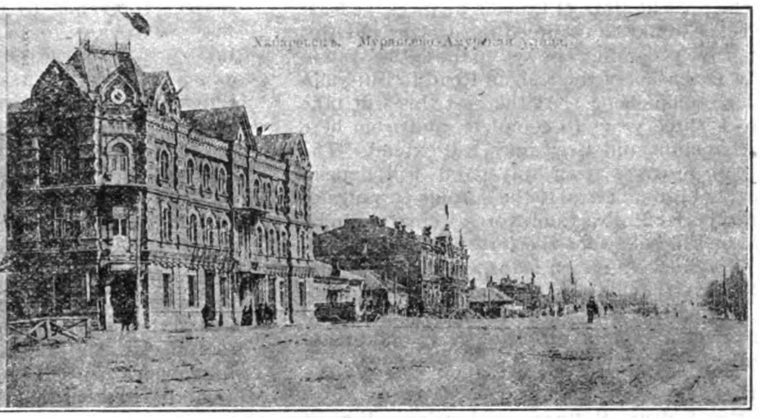
One of the most difficult and costly railway schemes entertained by the Chinese Government is the much discussed Kansu-Ili line. Many items are published in the native press from time to time, indicating there is something behind all the talk. The fact that Lanchow, the capital of Kansu province, is one of the most inaccessible cities of the Empire, and delivery of railway material to that point would entail enormous expense and delay, is apparently ignored by the Chinese. The proposed railway from Lanchow to Ili has always been considered by the average foreigner as a dream of the future to be built after the Pienlo Railway is extended on the Tungkwan, and thence to Sianfu, and from there to Lanchowfu. The distance from Honanfu, the present terminus of the Peinlo Line—through Tungkwan, Sianfu and Fenghsiangfu to Lanchowfu—is approximately 550 miles. The country traversed is a most difficult one for railroading and the provincial authorities and gentry show little enthusiasm in raising funds to construct the line.

The purpose of the central Government at Peking seems clearer and the dream of a Kansu-Ili line becomes more tangible when it is considered that the distance from Sui-yuan to Lanchowfu following the course of the great bend of the Yellow River is only about 600 miles, and through a country almost level and presenting no great engineering problems to overcome. The 600-mile road to Lanchow via Sui-yuan could be constructed at almost half the cost of a Tungkwan-Sianfu line, and its supervision remain entirely under the control of the Board of Communications, free from interference from the provincial gentry. So when we read that the Viceroy of the Shen-kan intends to utilize the famine sufferers in building the road to Ili, while some allowance must be made for exaggeration, the report or rumour may be accepted as an indication that some definite plan is being slowly welded into shape. The Viceroy at Lanchow has repeatedly memorialized the Throne about the importance of maintaining better communication with Ili, if the province of Sinkiang is to be saved to China. Ili is a long distance from Lanchowfu. The old trans-Asian caravan route from Lanchow to Ili over the Great Tien-shan North Road is over 1,500 miles. So to reach Ili by rail from Peking, the Chinese Government must extend the Kalgan-Suiyuan Railway about 2,100 miles at an expenditure of at least $40,000 gold per mile or a total of $84,000,000. The rate of progress on such a road must necessarily be slow, and 15 years at least would be necessary for its construction, or an annual expenditure of say $6,000,000 gold.

In addition to the above schemes for the protection of her Mongolian and Turkestan borders must be added the project for the Eastern Mongolian or Chinchow Tsitsihar-Aigun Line, the history of which is dealt with in this issue in a separate article. This line will be 750 miles long and the estimated cost is $30,-



CHINESE EASTERN RAILWAY STEAMER PLYING ON SUNGARI RIVER BETWEEN HARBAROVSK ON THE AMUR



BUILDING ON AMUR STREET, HARBAROVSK

000,000 gold or $40,000 per mile. So the Chinese railway program in her dependencies, which the government seems committed to, is as follows:

	Miles.	Estimated cost.	Per mile U. S. Cy.
Kalgan-Suiyuan Line	230	$11,500,000	$50,000
Sui-yuan-Urga	600	15,000,000	25,000
Urga-Kiachta	175	4,375,000	25,000
Sui-yuan-Lanchowfu Line	600	24,000,000	40,000
Lanchowfu-Ili Line	1500	60,000,000	40,000
*Sui-yuan Sair-ussu-Uliassutai Line	600	24,000,000	40,000
Uliassutai-Kobdo Line	300	12,000,000	40,000
‡Barkul-Uliassutai Line	400	16,000,000	40,000
Chinchowfu-Tsitsihar-Aigun Line	750	30,000,000	40,000
	5155	$196,875,000	....

*The proposed Central Mongolian line to Uliassutai, and beyond to Kobdo, would undoubtedly branch off the Trans-Mongolia line to Urga, somewhere near Sairussu about 350 miles northwest of Sui-yuan.

‡A connecting road between the Lanchow-Ili and Uliassutai lines would be greatly shortened by a road connecting the latter post with Barkul.

Without the aid of foreign loans and relying on the present state of China's finances, at least 20 years would be occupied in carrying out this extensive program. The key to the entire system is the extension of the Kalgan Road to Sui-yuan and Kweihaucheng. At the best this will take two or three years to complete, and from here the Lanchow and Urga lines will extend. The rate of progress from this point will depend entirely on finances. If the surplus earnings of the Imperial Railways of North China are to be ear-marked solely for these roads, progress will be very slow. Foreign loans are necessary and it appears that despite the unsatisfactory commercial side of the undertakings, such capital can be secured on favorable terms to build these lines.

The *Times* correspondent in a recent letter on the Kalgan Railway, and colonization of Mongolia, says: "No race has greater powers of colonization than the Chinese and nowhere have their powers been displayed more strikingly than in their extension into the pasture lands of Mongolia. Along a front several lundred miles in length the Chinese are moving northwards into the Mongol pasture lands at a rate that has been estimated at four miles per annum. Mongols cannot resist this pacific invasion of a people intellectually their superiors, who bring with them their industrious habits, their farming implements, and their skill in husbandry. Where a few nomad Mongols earned a scanty subsistence with their herds on untilled soil, now thousands of Chinese are living. Nomadic life is disappearing and agricultural life is taking its place. Villages are being built, schools erected, and the whole Chinese Government is seen at its best in encouraging this agricultural expansion. Land is given at merely nominal prices. Every encouragement is given to the husbandman and the results are remarkable, for cultivation causes the soil to rëtain its warmth so that seasons are modified and climate and rainfall undergo change. The time, indeed, seems not remote when the Gobi and Ordos deserts will be invaded and reclaimed. The Kalgan railway and the construction of the projected extension to Kweihuach'eng will give additional encouragement and assistance to Chinese colonization in Mongolia."

So it is not alone from political considerations that China is moved to push her railways into Mongolia. Equally important to her economic welfare is the opening up of new country for her rapidly multiplying millions. Judging from experience in other parts of the world, and even in Manchuria, it may be taken for granted that the influx of settlers from the over populated districts of the larger provinces, into the newly opened districts of Mongolia, will quickly make any new railway a commercial success, and source of revenue to the Government. What may seem now to be an unprofitable undertaking, in a few years would amply justify the expenditure. Of all countries in the world, China needs room to expand in, and Mongolia, Sinkiang and Tibet must be preserved to her for this purpose, or in another quarter of a century, her millions will demand a domicile in parts of the world now barred to their entrance.

The sudden interest displayed by the Chinese authorities in railways to Jehol, and beyond to the Imperial Hunting Park, is evidently traceable to the desire of British interests to give effect to the clause of the additional Agreement of 1902, which concedes to them the right to build a chord line from Peking to Tungshan.

This reads as follows:

"Art. 5. Under Clause 3 of the Agreement dated October 10th, 1898, it is stipulated that the construction of branch lines or extensions shall be undertaken by the Northern Railways Administration, and the intent of this stipulation is hereby confirmed in order to secure the existing interests of the railways. It is therefore agreed that the construction of any new railway within a distance of eighty miles of any portion of the existing lines, for which concessions have not been signed previous to the date of this Agreement shall be undertaken by the Administrators-General of the Imperial Northern Railways.

Such lines as the following:

A northern line from Peking or Fengtai to the Great Wall;

A chord line from Tungchow to Kuyeh or Tongshan;

A line from Tientsin to Paoting Fu;

shall not, in view of the interests of the Imperial Northern Railways, be allowed to fall into other hands."

A month or so ago Pekin dispatches in the native papers stated that as foreign applications for the contract for construction of a railway from Chinwangtao to Chuyungkuan had been refused by the Waiwupu, the Yuch'uanpu has made up its mind to extend the Kalgan line to Chinwangtao, to be a branch line to the Kalgan-Peking line, and Imperial sanction will shortly be obtained for the project.

This would imply that British influences have been at work to secure the construction of the line in compliance with the agreement, but China has the right to build it herself, and the same rule will apply as with the Kalgan line.

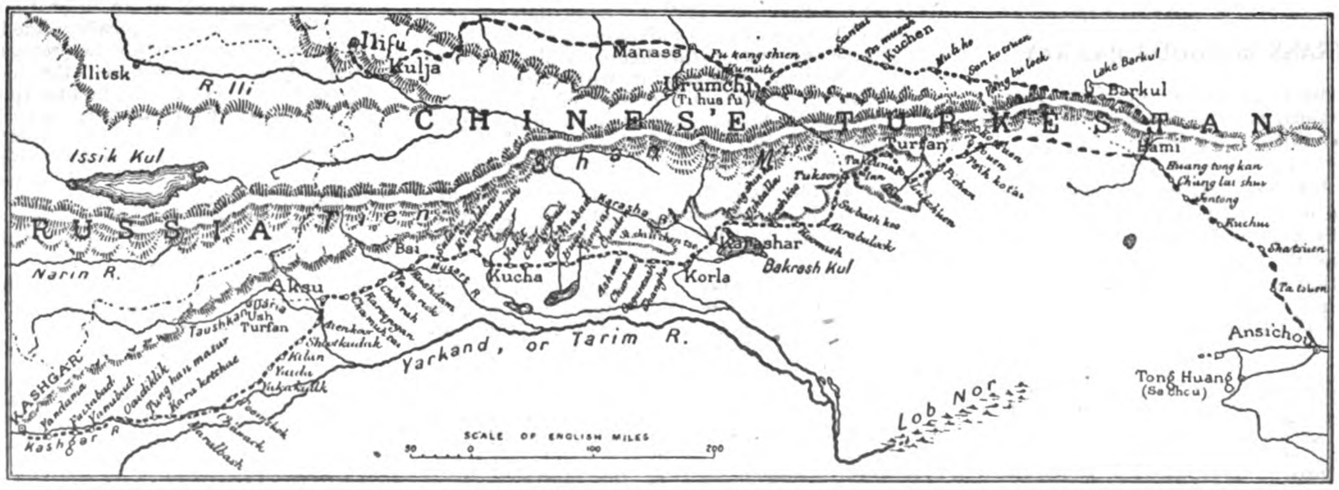
YIN CHING-CHOW BRANCH OF THE PEKIN-KALGAN RAILWAY

In addition to the main extensions to the Kalgan Road, the Board of Communications proposes to construct a branch line from the Hwailai station to Yin Ching-chow, a distance of 40 li or 14 miles. This will facilitate the transport of cereals from that district and prove a profitable enterprise.

JEHOL BRANCH RAILWAY

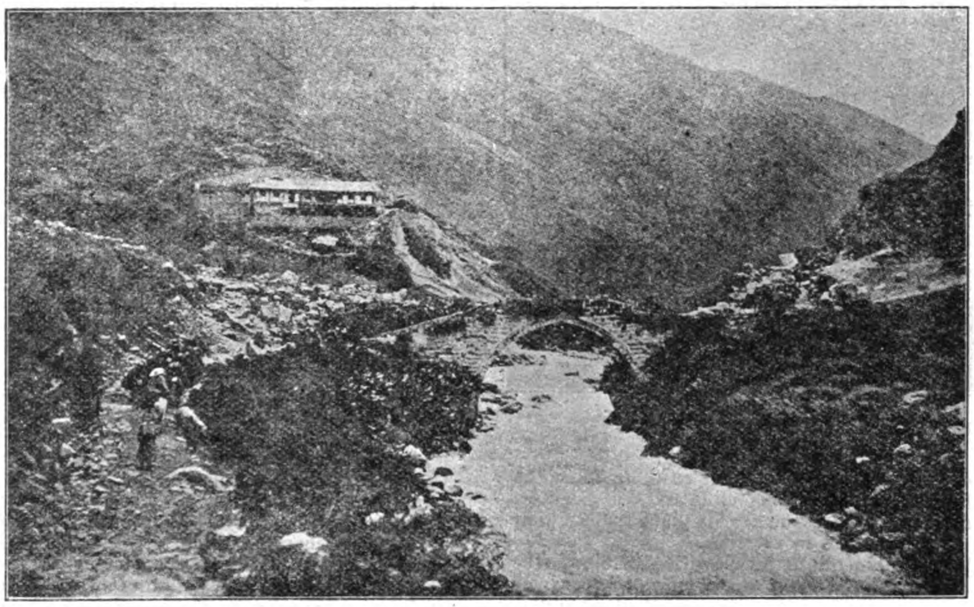
Another offshoot of the Kalgan Railway has recently received considerable attention from the Board of Communcations. This line will run from Pekin or some point on the Kalgan Railway to (Chengtefu) Jehol, the capital of Inner Mongolia, situated in the centre of an extensive mineral and timber district. The Military Governor of Jehol has strongly urged the construction of this line as a military necessity. A recent news item from Pekin states: that "the construction of a railway from Peking or Kalgan to Jehol has been mooted by the Yuch'uan-pu for some time without any definite conclusion having been arrived at. More recently, however, as a foreign power showed desire for the place, in view of its fertility and richness in minerals, President Hsu Shih-ch'ang has again considered the question. He will consult with H. E. Ting Chieh, late Assistant Military Governor at Jehol, before beginning the construction of the line, which will probably be taken in hand next year."

The distance from Pekin to Jehol is about 100 miles. At the same time the Military Lieutenant Governor of Jehol wired to the Board of Agriculture, Works and Commerce and the Board of Communications to consult about a 600 li light railway to be built between the forest of the Imperial Hunting Reserves and the town so as to give facilities for the sale of timber, a fund to be provided by the Viceroy of Chihli.



MAP OF PROVINCE OF SINKIANG OR CHINESE TURKESTAN SHOWING CARAVAN ROUTES AND POSSIBLE RAILWAY LINES

SZECHUEN-TIBET RAILWAY PROJECT

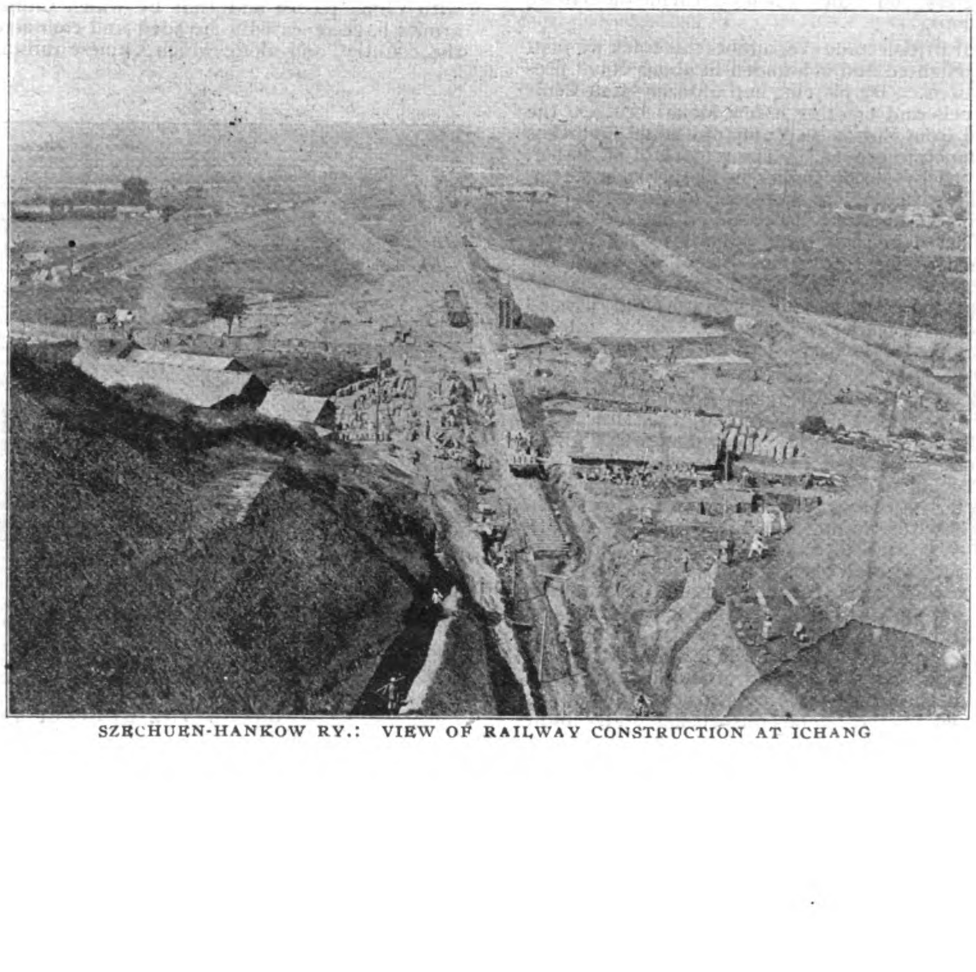


ON THE BORDERS OF TIBET

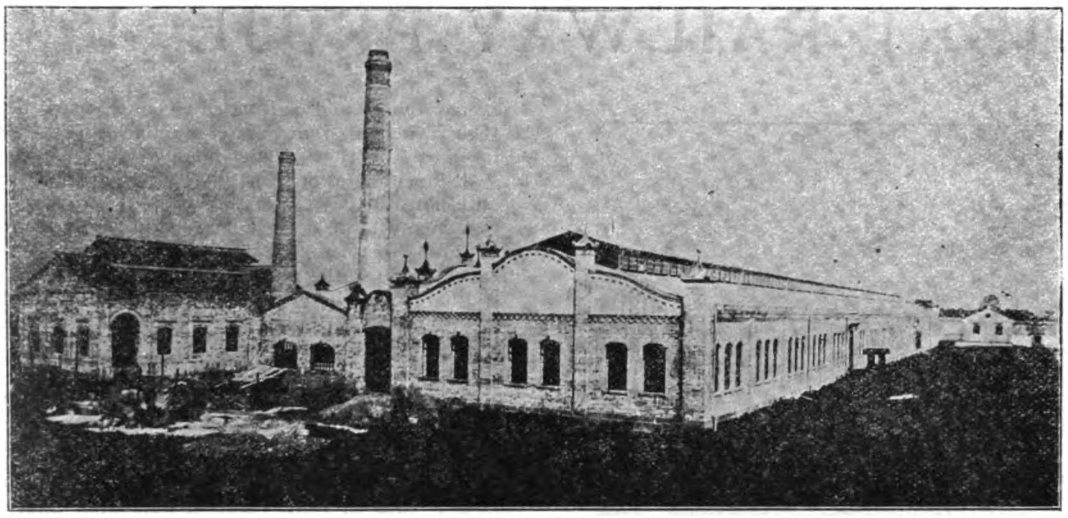
(*China Inland Mission.*)

Shanghai, March 1st, 1910.—The advance of the Chinese Army into Tibet, and the hurried flight of the Dailai Lama from Lhasa to a safe refuge in India, brings into prominence the projected railway from Chengtefu to Tibet. The Chinese have been operating for a long time to subdue the unruly Lamas and bring the country under Chinese rule. Each successive Viceroy of Szechuen has had his time fully occupied in warlike operations against the Independent Lolo tribes and the truculent Tibetan lamas. Instead of a sinecure, the post at Chengtu has called for considerable activity, and the maintenance of an army and cost of operations has consumed a large share of the provincial revenues. In fact the subjugation of the independent tribes of the Chia-Kung and the Tibetan frontier campaign has been a continual drain on the revenues of Szechuen, and advantage has been often taken of this fact by the Viceroys to absolve them from making the regular remittances to Peking. Under the last Viceroy, H. E. Hsi-Liang, now filling the post at Mukden, the outline of a campaign to regain complete ascendency over the border lands and Tibet was formulated. Coincident with the recruiting and organization of a modern military force, the plans for a large arsenal were drawn up. Taotai Key Tsu-yi, a graduated Civil and Mechanical Engineer from the Troy Polytechnic Institute, was appointed by Viceroy Hsi to visit Europe and select the plant. The order was placed with the well known firm of Schuchardt & Schutte. Machinery for the manufacture of rifles and cartridges, machine and mountain guns, and a complete powder factory were ordered, and the plant has only recently been turned over by the contractors and accepted by Viceroy Chao.

While Hsi-Liang was Viceroy at Chengtufu, he had under him as Taotai of the Mantze Marches, located at Yachowfu, Chao-Ehr-feng, a Chinese Bannerman. Yachow is the last Chinese town of importance in the province of Szechuen on the high road to Tibet, and the then administrative outpost of Chinese authority. Chao identified himself with the development of the province, and was appointed director-general of the native company formed for the construction of the Szechuen-Hupeh Railway, and when Hsi-Liang was ordered to Yunnan, the ordinary operation of Chinese official procedure was set aside, and the Taotai of Yachow-fu was appointed Acting Viceroy over the heads of the Provincial Treasurer and Judge. His brother Chao Ehr-hsun, the last incumbent of the post of Tartar General of Mukden, was appointed Viceroy of Szechuen, and at the same time Chao-Ehr-feng was appointed Frontier Commissioner and Resident in Tibet, with the rank of President of a Board. The latter's knowledge of the country and his long tenure of office on the Tibetan borderland well qualified him for the new post, and it is a striking example of China's progress, that the authorities in Peking should select and appoint a really suitable and competent official for this arduous work. Viceroy Chao brought with him many progressive ideas, and proceeded to carry out in Szechuen what he had initiated in Manchuria. As a result many new enterprises have been floated under native control, and an impetus given to the improvement of transportation. The Szechuen-Hankow Railway connecting Chengtofu with Ichang has been started, without the aid of foreign capital, and the Szechuen gentry have gone beyond the limits of their province and contracted to construct with their own funds that part of the line in Hupeh province from the Szechuen boundary to Ichang, a distance of approximately 75 miles. It is only natural that Chao Ehr-feng, in his operations against the outer tribes and his endeavors to mobilize a frontier force and prepare the expedition for the subjugation of the Lamas in the interior of Tibet, would turn his thoughts towards a railway from Chengtu over the mountain ranges to Bat'ang. And when it is remembered that his expedition has been delayed in starting an active forward movement for over a year and he received many urgent commands from Peking to make haste with his task, and subjected to much adverse criticism for his apparent want of courage, it can be readily understood that he has defended his actions on the score of transportation difficulties, and urgently recommended the construction of a railway from Chengtu to Tibet. In this he received the indorsement of his brother, Viceroy Chao. And so the Peking authorities without more ado authorized the Viceroy to go ahead and build the line. The distance from Chengtu, the base of operations, to the frontier posts at Batang where the military force was being mobilized, is only about 350 miles, and from there on to Lhasa, another stretch of 500 miles, and the country is undoubtedly the best in the world for the play of the highest engineering skill. But according to the naive Chinese reports, in pursuance of instructions received from Peking to build the line from Szechuen right through to Lhasa, Viceroy Chao and his brother, Resident Chao, took counsel together, and found that a preliminary estimate for the scheme was only Taels 30,000,000, and on this account it could not be carried out. This is only a cost of about $35,000 gold per mile, for a few miles of tunnels, a score or so of Zambesi Bridges and other minor engineering difficulties. However, this expenditre was beyond the capacity of Szechuen and it was proposed to go ahead slowly and build the line as far as Tachienlu at first, and then extend it slowly by stages from the profits of this section. As an after thought the native report concludes with the remark that "engineers and surveyors have been sent out to survey the line before beginning operations." The matter was, however, a serious one for Their Excellencies Chao, and also important to the best interests of the Imperial Government, and has therefore, been rescued



SZECHUEN-HANKOW RY.: VIEW OF RAILWAY CONSTRUCTION AT ICHANG



THE NEW ARSENAL AT CHENGTUFU

from a ridiculous position, and elevated to one of great moment to the state. Viceroy Chao advised the Peking officials that Taels 30,000,000 could not be raised in Szechuen and suggested that the line be built by sections, and the Yu-chuanpu was thereupon ordered to appoint surveyors to map out the route. The surveyors are now at work beyond Chengtufu. But Resident Chao, having charge of the military operations, and with a reputation at stake, and the national honor resting on him, could brook no delay in the matter, and proposed that a joint American and German Loan be contracted to hasten the work. As the projected road may not be self-supporting, the Imperial Government has decided to await the result of proper surveys and investigations, before discussing a foreign loan. And so the matter rests for the present. Resident Chao and his modern drilled troops have taken the war path, filled the Lamas with the fear of Confucius, and driven the reincarnated Buddha to a safe asylum under the protection of the Viceroy of India. With the country of the Lamas under subjection, and the authority of the Huangti recognized throughout the land, Resident Chao's solicitude for a railway to Lhasa may relax. But the scheme must sooner or later be carried into execution, if China is to retain control of Tibet. Fifty million taels or $30,000,000 gold is a small sum to pay for the retention of Tibet, and it is safe to assume that within a few years active work will be in progress on the Chengtu-Tachienlu-Batang sections.

"If British trade ever adopts this track we shall be delighted and astounded in about equal proportions. By piercing half a dozen Mont Cenis tunnels and erecting a few Menai bridges, the road from Burma to Yunnanfu could doubtless be much improved." The remark of M. Baber, quoted by Major Davies in his book on "Yunnan" with only a change of localities, applies with equal force to the proposed line into Tibet.

The main road from China into Tibet, over which passes the traffic, and along which the Chinese military posts are established is the great highway leaving Chengtu, and passing through Yachowfu, Tachienlu, Hokow, Litang, Batang, and thence westward over the mountain ranges to Tibet.

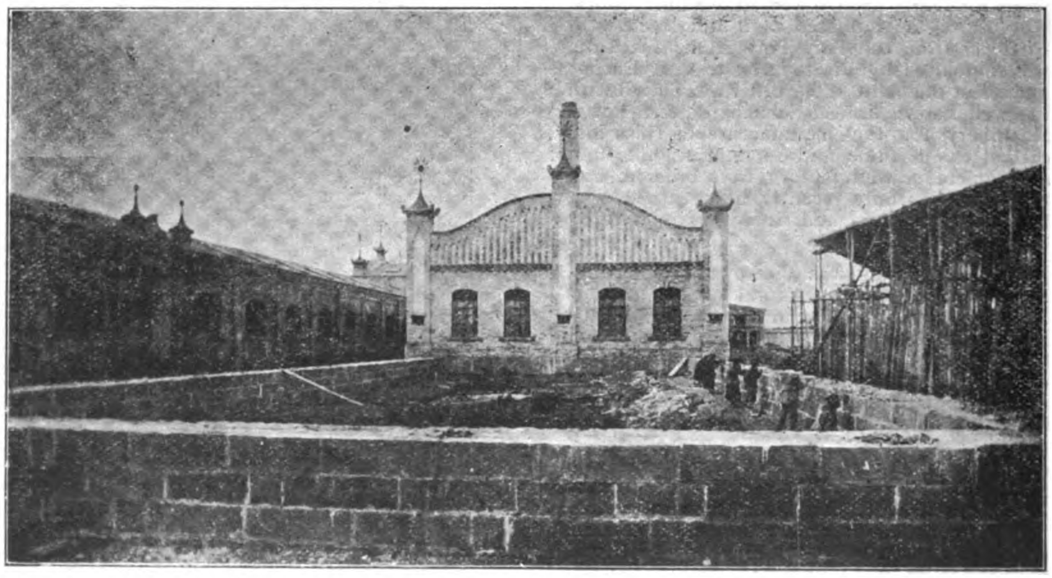
Starting from Chengtufu with an elevation of 1,700 ft, the road follows the Min River valley down to Kia-ting fu, a distance of about 80 miles, and then up the valley of the Ya River to Yachowfu distant 60 miles. There is another shorter route over the foothills from Chengtu to Yachow of about 100 miles. At Yachowfu the real difficulties of the way commence. Starting with an elevation of2,500 at Yachowfu the road ascends the valley of a swift mountain stream, and for the first 35 miles rises to 4,000 ft., and in the next 15 miles it crosses the Siang Ling range at an elevation of 16,100 feet in seven miles to the valley of the Tatang River at Lu ting Chao. Here the torrential river is crossed by the famous suspension bridge built over 50 years ago, and the road ascends the valley along precipitous cliffs to Wa Szekow, and ascends the ravine at this place to Ta Chien lu, rising 3,000 ft. in 12 miles.

From Tachienlu at an elevation of 8,400 feet the road makes a steep ascent of 7,000 feet over the Gi-la pass, in a distance of about 15 miles, and from here to the Hokow ferry over the Ya lung River there is a comparatively easy stretch with only one low pass. From Hokow westward to Litang there is a succession of high passes. And after leaving Hokow the road again ascends 6,000 ft. in 17 miles, and then follows the slopes of the range, about 80 miles west to Batang. The mountains on either side rise to an elevation of 16,000 to 20,000 ft. After leaving Batang there is also a succession of high ranges and deep valleys to be negotiated before the road strikes fairly even country on the slope downward towards Lhasa.

If this road is ever built, the estimate of Major Davies for the Yunnan Line of £15,000 to £20,000 per mile of meter gauge road will come nearer the mark than the reported Chinese preliminary estimate of £7,000. The French meter gauge Yunnan road cost over £12,000 per mile, and with the increased difficulties of the Tibetan road, the cost will not fall short of Major Davies' figures.

Mr. Archibald Little in his work on the Far East says:

"The easiest road by which to enter Tibet from the east is that over which the traffic with China passes and that by which Chinese armies have repeatedly invaded and conquered the country, and along which Chinese military posts are established to-day; that is, the great road from Chengtu, the capital of the province of Szechuen, which leads through Tarchendo, Litang and Batang to Lhasa; this road, after crossing the Min river at Kiating, leads up the valley of the Ya to the Chinese prefectural city of Yachow. In the beautiful Yachow valley is grown the shrub which provides the Tibetans with one of their chief necessaries of life—tea—which is here pressed into bricks and carried by toiling coolies over three mountain passes, up to 10,000 feet in height, to Tarchendo. Yachow lies at the foot of the Siang-ling, an outwork of the high Tibetan barrier, over which leads the first of these three passes. The Siang-ling or Elephant range (so named in memory of Pu-hien, who carried the sacred books of Buddha from India to China over this pass on the back of an elephant) forms the first of the mountain barriers that separate China from Tibet, and which, up to the time of Kienlung's conquests in the eighteenth century, formed the political barrier as well. Crossing two more passes in the barrier ranges, the road traverses the swift-flowing Tatung river by the famous suspension bridge of Lu-ting Chiao (Kiaking, 1796-1821), built in Taokwang's reign (1821-51), and enters the Ta-hsueh-shan, the Snow range; the great girdling rampart of the Tibetan tableland, by the ravine of Wa-sze-kou (tiled roof monastery), down which flows the impetuous river of Tarchendo, which here discharges into the Tatung after falling 3,000 feet in a distance of twenty miles. The building of the bridge at Lu-ting greatly facilitated the intercourse between China and Tibet, the Tatung river being otherwise impassable in the rainy season, which prevails from May to October and is here very pronounced, while in winter, when the rivers are ferryable, the passes beyond are closed by snow. The rain-clouds from the China Sea are driven by the south-west monsoon against the flanks of the snow range that lines the right bank of the Tatung, and, rising up them, are there relieved of their moisture, leaving little or nothing for the thirsty tableland beyond. The heavy precipitation of this region, coupled with the fact that, from Lu-ting Chiao to its mouth in the Min at Kiating, the Tatung river, here a stream 100 yards wide and six to ten feet deep, falls 3,000 feet in about 100 miles, sufficiently accounts for there being neither ford nor ferry across it from below the mouth of its copious tributary the Tarchendo at Wa-sze-kou until it quits the Tibetan border fifty miles lower down. Here, at a place called Kinho-kou, it unites with the Kin river, and, changing its course from south to east, forms the northern frontier of the independent Lolo country, that extends hence to the banks of the Kinsha river in the south. The "Snow Range" is practically, by way of many intervening folds to the north of Assam and the Burmese "Kachin" country, a north-eastern extension



ONE OF THE WINGS OF THE NEW ARSENAL AT CHENGTUFU

of the Himalayas curving round north of Burma and then trending north-east and so forming the western and northern barrier of the Szechuen lowlands up to the borders of Shensi. This glacier-bearing range, where it runs north, with the foot of its precipitous eastern slope washed in the swift-flowing Tatung river, averages some 20,000 feet in height; 15,000 feet being about the level of the snow-line in this latitude, and Gill gives 22,000 feet as the height of the peaks of the "Nine-nails range," which shuts off the Chengtu plateau on its north-western side from the upper valley of the Min and the Tibetan table-land north of Sungpan. Shortly after crossing the Lu-ting bridge, the road ascends the Wa-sze-kou ravine through the narrow cleft of the Tarchendo ravine to the town of that name, situated 8,400 feet above the sea. Tarchendo is the great frontier mart of Tibetan trade with China, is a busy populous place, a walled city, and the seat of the native "Wang," or prince (called Tu-sze), who, under the surveillance of a Chinese Taotai, rules the Tibetan population of the town and district. Here the Chinese porters deposit their heavy loads, which are then repacked on to the backs of the Tibetan yak, and so carried across the Thamo and Gila passes to Batang and Lhasa. A large barter trade is carried on in skins, musk, wool, and gold from Tibet, and in tea, cotton-cloth, and "notions" from China, many of the most important Szechuen mercantile firms possessing branch hongs in Tarchendo. A few Manchester goods also find their way to and are on sale in the Chinese shops, but the poor Tibetan is fully clad, winter and summer, in a sheepskin robe (pushtu), yak-skin boots, and a fur cap, and has little money and still less inclination for the luxury of clean linen (literally, cotton), such as his more civilized Chinese neighbour delights in; what money he does manage to accumulate is invested in jewellery for the women, many of whom are well groomed and smartly dressed, and to whose hands all business is entrusted. The city of Tarchendo is situated a the junction of two narrow valleys hedged in by steep mountains running up into the snow-line; westward the road leaves the ravine, and leads by an easy ascent to the comparatively arid table-land 4,000 feet above the town. These valleys are well watered by the two torrential streams, the Tar and Chen, which unite above the town, and flow through it. The opening in the mountains has left space for about one hundred acres of level ground outside the city, carefully tilled by Chinese settlers and producing good crops of maize and vegetables. The surrounding mountains are covered with impenetrable scrub, and are reported by the Chinese to be rich in minerals, formerly worked in petty painstaking Chinese fashion; but all mines are now closed by order of the officials, partly from fear that prospectors from the West might otherwise discover their value and claim to exploit them."

THE MARCHES OF THE MANTZE*

TAOTAI KEY TSU YI,

EDUCATED IN AMERICA, 1883, AS CIVIL AND MECHANICAL ENGINEER, PURCHASED THE MACHINERY AND INSTALLED THE STEEL PLANT IN KWEICHOW PROVINCE, AND ACTED AS ITS MANAGER FOR A NUMBER OF YEARS, ALSO SELECTED AND PURCHASED THE PLANT FOR THE CHENGTU ARSENAL, NOW IN CHARGE OF THE MINT AND ELECTRIC LIGHT WORKS AT MUKDEN

One of the most authoritative and interesting descriptions of the Tibetan country, between Tatsienlu and Batang, is to be found in the book, entitled "The Marches of the Mantze," written by Mr. J. H. Edgar of the China Inland Mission, stationed in this district. In view of the great interest attached to this region at present, owing to the sudden activity of the Chinese troops, Mr. Edgar's book should be widely read as his narrative throws considerable light on the situation. With permission of the China Inland Mission, we reproduce the following extracts:

"'The Marches of the Mantze' is a term which may fittingly be applied to that large tract of country in which Tatsienlu, Batang, and Siangchung are situated to the west of Szechuen. From east to west averaging about 500 miles, and from north to south somewhat more, it consists on the whole of high, treeless plateaux from 12,000 to 14,000 feet above sea-level, surrounded by high ranges from 17,000 to 20,000 feet.

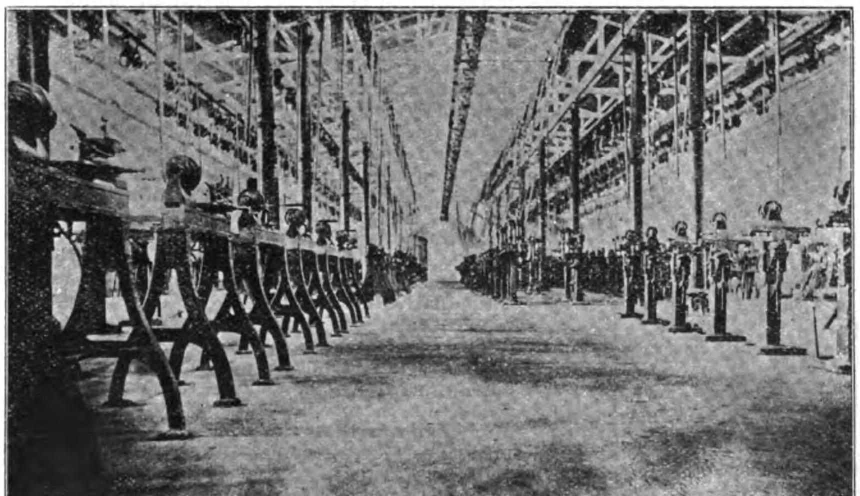
"The people inhabiting the Marches are of Tibetan descent, and without exception speak the language of this people. Here also are noticed some religious instincts, the dislike of foreign rule, the nomadic and predatory habits, the tribal form of government, with polyandry and suggestions of a former matriarchy, a disregard of cleanliness, a love of ornaments, and peculiar diet which characterises the whole Tibetan race.

"This wild land has always resisted Chinese pretensions. Expeditions have devastated it again and again; various forms of government have been employed more or less favourable to Peking; and schemes to colonise it have proved disastrous. It is a matter of history that it has insulted and killed China's high officials; those paltry regions have arrogantly defied China for years; and native chiefs, believed to be loyal agents, have, in the evil day, proved traitorous. But many think what has happened in the past will be an index to the future, and that the wild Marches will continue to exasperate and perplex China. To this day, be it noted, the regions of Chantui, Sanai, Linkasi, and other places are either directly under Lhassa, or remain, like Derge, practically independent of either that centre or Peking.

"The roads through the Marches and the means for transport are peculiar. The pedestrian, so common on the plain, and the strings of heavily burdened coolies or stolid carriers, are unknown west of Tatsienlu, and the traveller and his baggage are at the mercy of the ungroomed and often unreliable animals of the Tibetans. A look at the map of the Marches will explain the change. The official road to Lhassa passes along the norther border of the Marches, the rivers of which are very numerous. The rivers flowing south and the road going west, the traveller is not only near the watershed of a great river system, but is continually dipping into the valleys of the above rivers and crossing the passes of the mountains which divide them. The road through the Marches is only once—and that in the valley of the Yalong—below 12,500 feet, while twelve passes, not one of which is under 14,500 feet, must be crossed!

"Few who have not visited the Marches will understand what a prodigious task the administration of Tibet really is, and it will no doubt surprise many to know that the multitudinous officials and suites, changing once in three years for reasons both humane and imperial, means a literal stream of ingoing and outgoing officials, soldiers, couriers, and tribute bearers connected

*The Marches of the Mantze, by J. H. Edgar, Missionary in the Tibetan Border, with a preface by Cecil Polhill. Published by the China Inland Mission. Price .75 Mex.



THE NEW ARSENAL AT CHENGTUFU: SMALL ARMS MACHINE ROOM

POWDER FACTORY AT CHENGTUFU

with the Tibetan administration. And on the whole China has made arrangements to overcome the difficulties of travel in one of the highest thoroughfares in the world, in principle eminently satisfactory, and by no means as unfair as generally supposed.

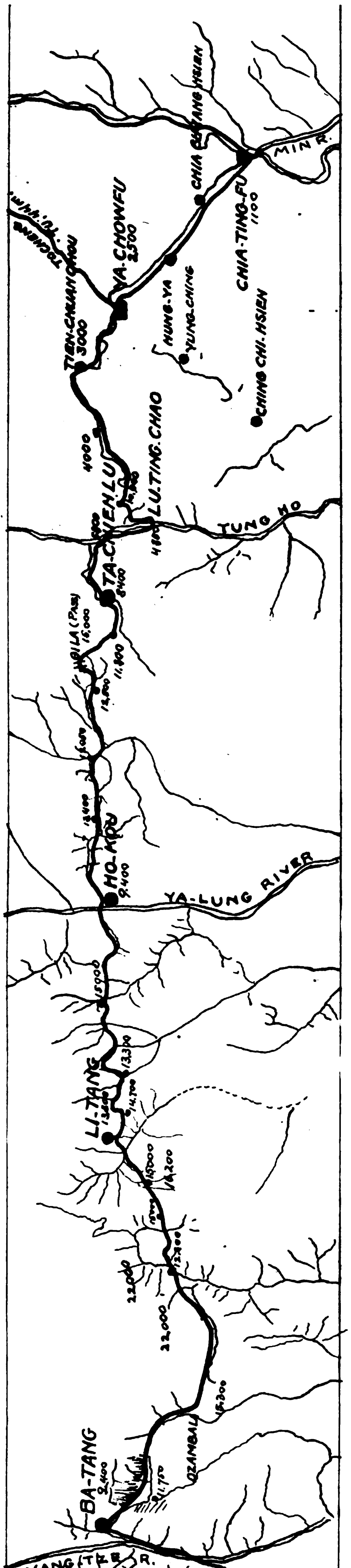
"About three years ago a serious rebellion agitated the whole region west of Tatsienlu, and as it was to mark the beginning of a new era in the Marches, it is worth examination in some detail. It is relatively correct to say that the rebellion had been simmering for many years. The abuse of the socage system, arrogance of the Lamas, avarice of the native chiefs, and the cruelty of the Chinese had caused widespread dissatisfaction among the people in districts abutting on the main roads.

"But more serious forces were at work. When the writer arrived at Tatsienlu in 1902, Russian influence was paramount at Lhassa. Dorjieff, an educated Russian Buriat, had so gained the ear of the Dalai Lama that a secret treaty had been signed favourable to Russia, and preparations were being made by Tibet to cast off the yoke of China. Both England and China were alarmed, and the former demanded a settlement of outstanding questions affecting her Indian border. But the Tibetans treated the demands with such contempt that an expedition was despatched to demand a settlement at Lhassa if necessary. After weary months of fruitless waiting, and often sharp fighting, the capital of Buddhism was entered only to find that the Dalai Lama and Dorjieff had fled towards Urga. An agreement, however, more or less satisfactory, was signed by some authority in Tibet, and Colonel Younghusband returned to India.

"In 1903 the powerful Lamasery at Litang openly defied China and for some time it was uncertain whether the local chiefs and the Chantui confederacy would join with them. However, owing to the prompt and courageous action of Sub-Prefect Liu at Tatsienlu, the clique suffered a severe blow by an attack on the Lamasery in which the Lamas were defeated and the Abbot with some of his relatives summarily beheaded. About the same time, also according to a persistent rumour, Batang, Litang, and Chantui had a secret agreement in which throwing off China's yoke and influence was aimed at. In 1904, owing to a grant of mining rights in the sub-chieftaincy of Kata, the opportunity for action seemed imminent, but Chantui retired from the union and the forces of China were allowed to march on Tailing and demolish the famous Lamasery unopposed.

"But at last a mistaken policy at Peking and the lack of tact displayed by a leading official were the sparks which exploded the magazines of Tibetan discontent. Feg, a Manchurian, received appointment as 'Deputy Imperial Commissioner of Tibetan Affairs,' with instructions to reside partly at Batang and partly in Chamdo. This arrangement was very unpopular, inasmuch as it threatened to interfere with the freedom of the native chiefs. But when Feng, shortly after his arrival at Batang, included in his policy a scheme for reducing the power and population of the Lamaseries, priests and people were both against the Government. At the end of 1904 the crisis was so acute that the Commissioner Feng deemed it safer to retire to Tatsienlu. But he had only proceeded ten li beyond Batang, when thousands of ambushed Tibetans surrounded the party of fifty men and exterminated them without distinction of race or rank. Then the rebels, returning to Batang, drove out the Chinese and occupied the city for nearly four months. Among those killed was a Roman Catholic priest and five converts.

"News of the rebellion soon reached Chengtu and a punitive expedition under General Ma was organized immediately, and arriving at Batang on the 24th of the sixth month, recaptured the city, executed the two chiefs, and set an expedition to exterminate the inhabitants of Chihtsuen, who were more directly concerned in the death of H. E. Feng. It was the intention of the Chinese General to first sack and then destroy the huge Lamasery of Tinglinsze, but the Lamas forestalled him by themselves burning the wonderful building and the bridge over the Chihtsuen River, and fleeing with the temple treasures to the inaccessible mountains of Sanai. The abbot, however, was lately given up by the Chihtsuen natives and executed



SKETCH MAP OF THE GREAT TIBETAN ROAD ACROSS THE MANTZE MARCHES FROM YA-CHOWFU TO BA-TANG

as a rebel of the Chinese Empire. At Siangcheng operations dragged on until the 4th intercalary month of the 32nd year of Kwang Hsu (1906), and it was not until the capture of Yenching in the 12th month of the same year that the war was brought to a close.

"The outcome of the rebellion was not only startling because the power of Lamaism was broken and the old form of native government discarded, but also on account of the fact that China is full of plans for the reorganisation of the conquered regions. Not only are the strategic centres garrisoned with troops and officials appointed, but the conditions of travel are improved, a telegraph terminates at Batang, and every inducement is offered to Chinese to cultivate the waste lands and work the mineral deposits of the country

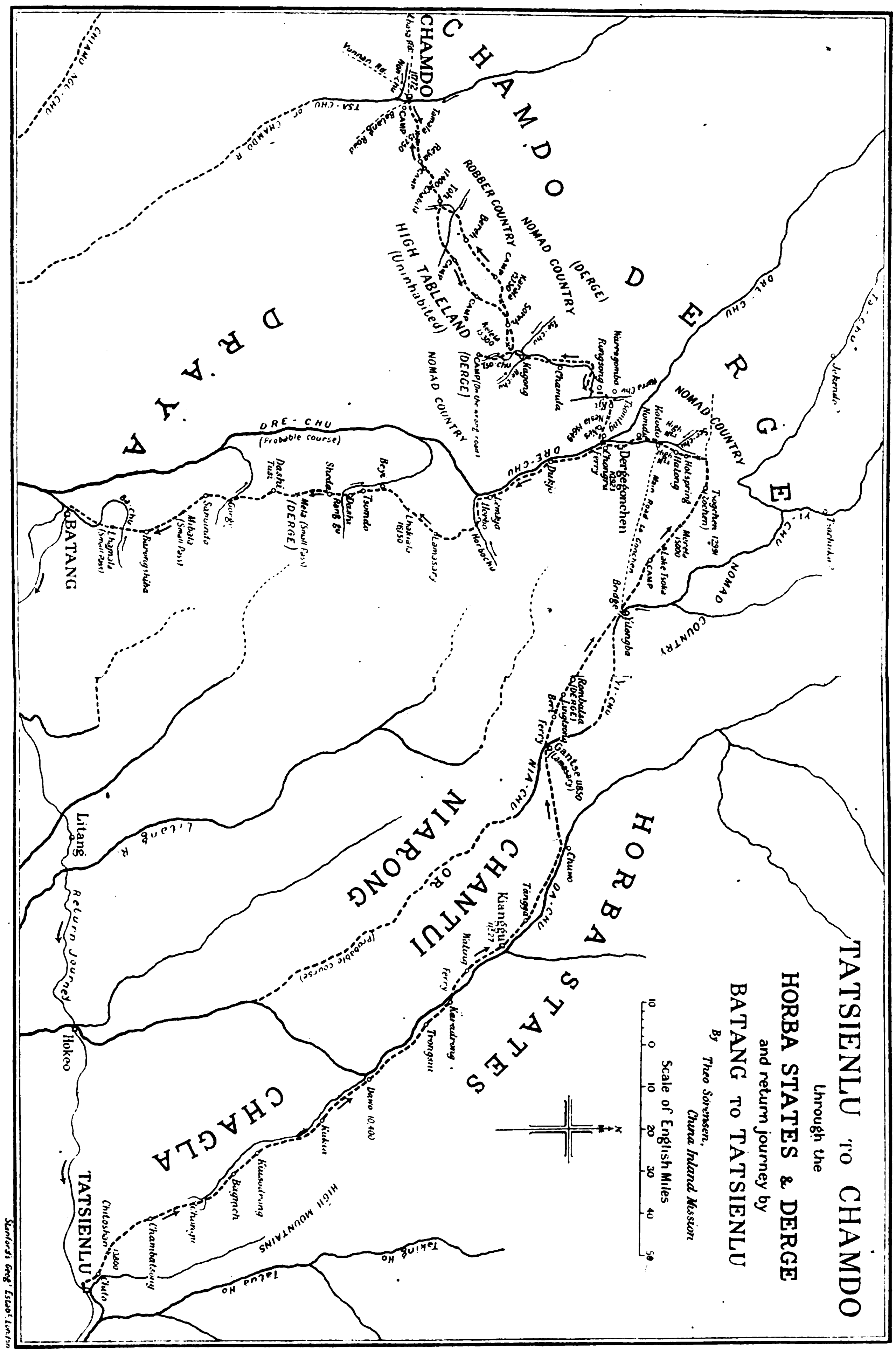
"By comparing conditions now obtaining with those observed by the writer in 1903 an idea of H. E. Chao's influence in the Marches may be gathered. The condition of Litang, for instance, in those days was by no means reassuring. The Lamas, although lately punished by the Chinese forces, were truculent and unfriendly, and the native chiefs endured the Chinese because of their inability to oust them. Brigands thronged the mountains, and the great regions south of Litang were closed to Chinese and foreigners alike; and in the city, among officials, traders and soldiers, the fear of the Lamas had taken the place of the fear of God. But revisiting the region again after three years the change is really remarkable. Then all was chaos and uncertainty: now order and confidence in Chinese rule is manifest everywhere. This is largely due to the humiliation of the Lamas. Although the Litang colony has not suffered, the haughty and defiant confederacies at Batang and Siangcheng have been broken up, the temples sacked and destroyed, and the Lamas killed or disbanded. And there is a feeling at Litang that China would make no exception in this region if circumstances demanded it. Again in Litang and Batang the native rulers have come to grief, the latter two suffering the death penalty for high treason, and the former being deposed forever. One is now a fugitive in Tibet, and one died by his own hand while on his way to Chengtu.

"There is no doubt that the people recognize that the strong arm of China has done all this, and rebellion is no part of the Tibetan's programme. But in case they might forget, China has placed a camp of one thousand men in the city under a Tao-tai, who drills them daily according to foreign methods. Moreover, this body of men attends to many details which now make Litang both pleasant and safe to live in. Bodies of men, for instance, patrol the streets demanding both orderly and decorous behaviours. They are also concerned with a policy for the extirpation of brigands, and in this respect alone have done an important work. Whole regions formerly infested by these picturesque but inconvenient gentry are now quite safe. On the awful Hwangtukang, 16,000 feet above the sea-level, companies of soldiers from the Litang camp spent the winter in order that the district might be free from the road agents.

"Now the outcome of all this is a confidence in the Government, which is highly beneficial to the Chinese and Tibetans. Business is increasing rapidly; trees are being planted in the waste lands; telegraph communication connects the city with Peking; and the Roman Catholics have bought buildings for missionary purposes. All this suggests that Litang has entered a new era—an era with orderly government, uninfluenced by Lamaism

"It was much the same at Batang. In 1903 China was ignored or insulted by Lamas and Tusis (native chiefs) alike. Now the Lamasery is burnt and the order of the native chiefs extinguished for ever. Moreover, China aims at ruling the turbulent people directly. The appointment of city elders, the erection of schools for the people, and attempts at colonisation indicate that China will endeavour for many years to assert her authority and inculcate her principles.

"In dealing with the Mantze Marches, three places must be supremely important, and a fourth indirectly so, viz., Tatsienlu, Litang, Batang, and Siangcheng. Tatsienlu is at the extreme east of the Marches, and is a political and commercial centre of primary importance.

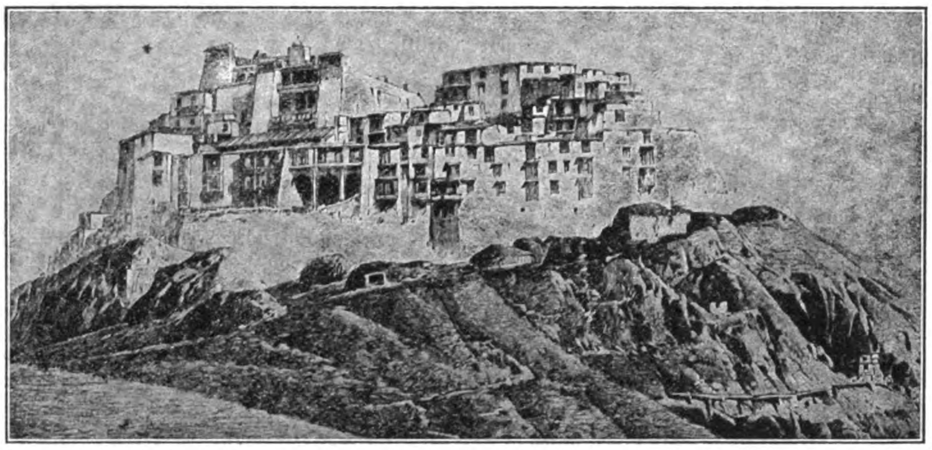


(From China Millions.)

THE GREAT TIBETAN HIGHWAY SHOWING NORTH BRANCH OF THE ROAD FROM TATSIENLU TO CHAMDO, TRAVELLED BY MR. SORENSON OF THE INLAND CHINA MISSION, THE SCENE OF THE MILITARY OPERATIONS OF H. E. CHAO EHR FENG

It is the *Ultima Thule* of China and Tibet, where a thriving trade is done in the wares of both countries. Moreover, it is the residence of the chief of Chagla, a quasi-independent kinglet with jurisdiction in other states more distant from China.

"Tatsienlu, apart from being the centre of the Chagla region which borders on Lengpien, Shenpien, Tsali, Meilo, Litang, Chantui, Kata, Badi, Bawang, Meokong, Muping, and Yutong, is also the starting point of two main roads to Lhassa, and one also to the regions of Ta and Siaokin.



VIEW OF ONE OF THE LAMASARIES

"Hokow is situated at the west end of Chagla and controls a very important ferry over the Yalong. All the interior officials and large caravans of merchants and travellers must perforce pass through and remain some time in its vicinity. For instance, once in three years two Ambans go into Lhassa with enormous trains, and once in three years two come out laden with the wares of Tibet. And during the same period the various officials, ordinary and extraordinary, of all grades proceed to their posts and retire when their term is completed.

"Hokow commands four roads: one east through Chagla to Tatsienlu; another west to Litang; a third north to Chantui; and one south to Meilo. It has a population of about 300 souls; 200 on the Chagla side, and 100 under Litang. The valley east (to the foot of Kazhila) will have a population of 100 families, including the senior headman of Chagla.

"Batang is a village at the extreme west of the Mantze Marches, with a population of 400 families. West of Litang, 520 li, it is the centre of an important district, partly administered from Peking, and partly from Lhassa. In my diary of 1903 the city is thus described:

"Until lately the native population of Batang was controlled by a Tibetan chief and his deputy. At the conclusion of the late war they were deemed guilty of high treason and executed, their families being taken captive to Chengtu. The head chief, whose ancestors were from Yunnan, a Chinese named Lo, was a second official of the Chinese Empire, and a third-class native ruler. His daughter, a pretty maiden of sixteen, is in captivity in the Commissionary's residence. She seems quite happy, and it is rumoured that the official has proposed making her his daughter-in-law, but the mother, now a captive in Chengtu, declines the honour. At present the government of Batang is directly under a fifth-class Chinese official, who must perforce hear and decide cases through an interpreter, a method which practically leaves the community in the hands of dissolute and untrustworthy half-castes.

"Litang is a Chinese and Tibetan village nestling in the corner of an enormous plain, and is the capital of a nomadic district of the same name. Situated at an altitude of nearly 14,000 feet (B. P. 199.4°; Temp. 60° F.), it may perhaps claim to being the highest city in the world. The Guide Book of Tibet gives the following information regarding this city:—'Litang is 650 li from Tatsienlu and 520 from Batang.'

"In the town and environs the following figures, though based on official information, are given tentatively:

Lamas, servants and students in Lamasery	5,000
Tibetans in immediate vicinity	2,000
Chinese, Tibetan concubines of same, and children	1,000
Nomads on plain and hills around	1,000
Soldiers, servants and concubines of same	1,000
Total population based on official information	10,000

"Litang, notwithstanding its dreary plain, rigorous climate, filthy street, and villainous Lamasery, must always be of great importance to China. It is in the first place on the official road to Lhassa, and also the natural centre of some 5000 Tibetan families in the south. Then the nomads to the north, probably 3200 families, find it their only centre, and traders from Chantui, Sanai, and even Derge visit it in large numbers. The population of the district I give with some hesitation as follows:—

Nomads, Maoyang, Chuehteng, Bonyag, etc., Chongsi	13,000
Local population—Chinese Tibetans, half-castes, etc	10,000
Siangcheng, Kongkalin, Taopa, etc	16,000
Shomba, Molashih, Tsosang	10,000
Chinese officials, soldiers, etc., in above regions	1,000
Total population of region formerly under Litang, Tusze or Chiefs	50,000

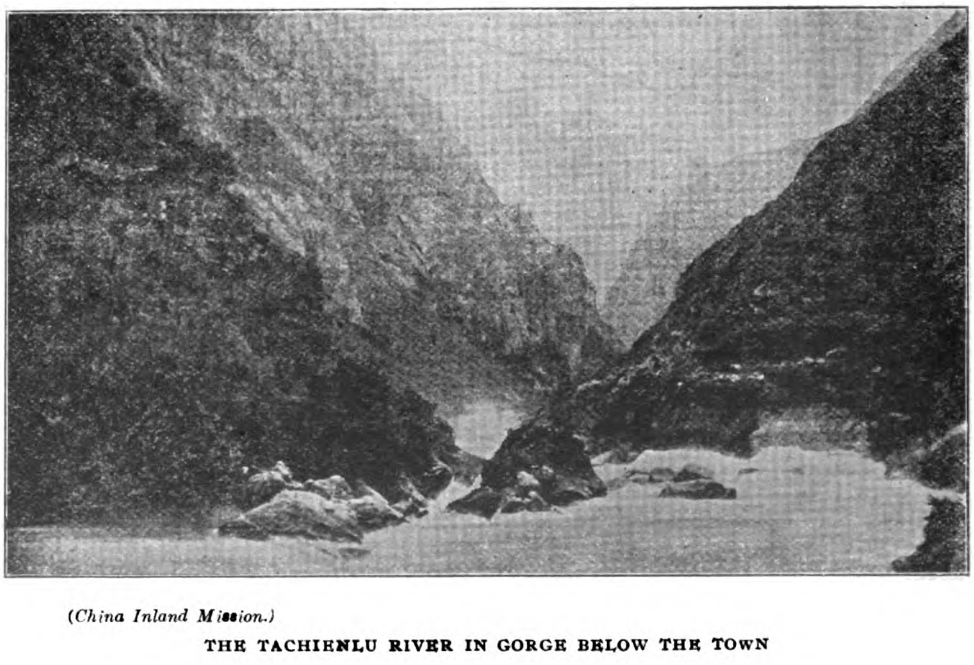
"Litang is likely to remain an important military centre. It is about the middle of the Marches. In the south are the insolent tribesmen of Taopa and Siangcheng; to the southeast the semi-independent region of Meilo, with large and turbulent Lamaseries. Hordes of the independent Chantui, and perhaps also the incorrigible Sanai, threaten on the north, and the local opulent Lamasery will not be slow to take advantage of inefficient administration. From the above it will be seen that the Chinese official, trader, or colonist is only safe as long as China has an army on the spot strong enough to intimidate her relentless and dissatisfied 'barbarians.'

"The above will all have a direct bearing on the commercial status of Litang. Food, clothing, wares, and luxuries for officials, soldiers and Tibetans must all be brought in from Tatsienlu and retailed here, while a large export trade in gold, drugs, hides, and Tibetan commodities may be expected.

"Although for many years defied by the southern tribes, and intimidated by the Lamas locally, it was not until the murder of the Imperial Commissioner Feng at Batang that they showed open signs of insubordination by delaying the transport service. When the generals of China arrived and demanded Ulag, the chiefs were 'not at home' for a month; then sufficient animals would not arrive, and finally the ancient Courier service was not only arbitrarily abolished by their orders, but trains of ammunition, provisions, and accoutrements were left to spoil on the roadside. Finally, important despatches were destroyed, and companies of natives and arms were sent to the assistance of the Taopa and Siangcheng rebels.

"When the Chinese returned victorious, the head chief had fled into Tibet with his family and belongings, and threats and promises of rewards alike failed to unearth him. His colleague remaining at his post in Litang was taken prisoner, with the understanding that his case should be tried at Chengtu; but the triumphal procession had not gone far when it was known that the scion of royalty had taken poison, and before Hochuka was reached he had nothing to fear from earthly justice or injustice. Shortly afterwards, a proclamation by H. E. Chao, Warden of the Marches, abolished the ancient order of chiefs existing in Litang for ever. The northern sub-chiefs remained unchanged; the immediate region of Litang, laymen and priests came under the Commissary of Litang; and Siangcheng and Taopa are yet under martial law. Just what the future form of government will be, is not easy to say; but we may be almost certain that the Lamas, humbled and warned by the fate of Batang and Sampeiling, will not by influence or action complicate the Chinese programme.

"The Tibetans in the regions of Bali are mortally afraid of these wild tribesmen just opposite, and call them robbers without qualification. They dare not offend them on account of reprisals, and it is rumoured that the chief receives 400 taels annually from China on condition that his people do not pillage Chinese subjects. Those of the Sanai which I have seen are wild, independent fellows, wearing peculiarly shaped white felt hats with high crowns and broad brims. It is said they live far up the mountains, but just opposite Shuimaokow there is a settlement where the Sanai live during the season necessary for the cul-



(China Inland Mission.)

THE TACHIENLU RIVER IN GORGE BELOW THE TOWN

tivation of the fields on the river-bank. When winter comes they disappear in the unknown hills to the west. This alone, if true, would give the idea of a haphazard and predatory people.

"Sanai was once under China, but for some reason Tibet claimed it and the former made no effort to regain it. During H. E. Chao's operations in the Marches, however, the subjugation of Sanai was part of China's policy. A party of men went north-west from Litang to the Sanai border and invited the chiefs to parley. As the discussion was going on a Gatling gun was brought out, and its power tested on a rock in the presence of all. The effect was so vigorous that the chiefs tendered their allegiance immediately! 'Sanai,' says the Guide Book, 'is east of Asutang and north of Chiangka. It is known as the district of the Bafan. The people are wild and fierce, and live by robbing travellers.'

"Chupalong is ninety li south of Batang, with a population of 30 families. A small official resides here whose duty it is to control the famous ferry over the Kinsha. The population, although slightly modified by Chinese colonists, petty officials, boatmen, and others, is quite Tibetan in customs and language. We left Chupalong at 3 p. m. and crossed the Kinsha by an auxiliary ferry at a lonely place ten li below the village.

"Kongla is a settlement of about 15 families, near where the Tibetan road leaves the Kinsha for a more westerly course. With the villages of the Kongtzeting, and others on the mountain above, it would form a centre for about 70 families. On the left bank of the Kinsha is a road to Rongmi or Tsongtsah, and an unsubdued region farther south bordering on Siangcheng. The Chinese, probably actuated by ignorance and politeness, give the population of the former as 4000 families, and the latter as 1000 families."

(*China Inland Mission*)

ON THE ROAD TO TIBET: THE TOWN OF TACHIENLU

EIGHTY DAYS TRAVEL IN EASTERN TIBET

A Journey Through all the Horba States, through Part of Derge, into Chamdo, and the return journey by Batang to Tatsienlu.

By Theo. Sorenson.*

In company with the Chinese evangelist, a Tibetan colporteur, and a half caste servant, we left Tatsienlu on the 31st of May with a passport entitling us to travel in the whole of Derge. We did not, however, put much confidence in this Chinese passport, as in previous years similar passports had been given me, but not one of them ever brought me further than Kianggu, where the official had private instructions from Tatsienlu to prohibit me going beyond. This time we were better prepared. Having our own horses and provisions to last us several months, we felt that we could do without official help, and, in fact, preferred to travel without Ula.† At Bagmeh we visited a small temple on the hill in which a hermit was locked up for life. We tried to enter the place, knocked at the door and called him, but all in vain, he was not to be moved by influences from the outer world. We noticed there were two doors leading into his cell, one locked from the outside and evidently in charge of those who bring him his food; the other locked from the inside, for his private use. Finding it impossible to get into communication with this recluse, we left the place after having thrown a few copies of the gospels into his cell, which we hope he will be reading and meditating on by this time.

Dawo is the first important village of any importance on the Northern road to Tibet. There are about a hundred and fifty houses in the village, which is situated on a large and fertile plain at an elevation of 10,400 feet above sea level. Close by the village is a very large lamasary with 3,000 lamas. On my first visit three years ago, the lamas were very friendly, gave me presents, and allowed me to enter their lamasary where I distributed quite a number of gospels, but on my second visit, a year later, we were practically driven out of the lamasary, hence this time I thought I had better leave them alone. Dawo is of great importance as a center of trade; it is the North-Western boundary of Chagla, the Western boundary of Geshi, and the Southern boundary of Horba. Hence in Dawo we find, besides Chinese and half-caste people, the Chagla, Geshi, Kongtse and Matse. There is a small military official (Tsongye), besides representatives of the above mentioned chiefs. This place has no doubt in former years formed part of the Geshi territory, as at present the peculiar Geshi dialect of the Tibetan language is still spoken in Dawo and understood all the way to Gantse. We called on the queen of the Matse. She resides on the other side of the Da-Chu River, speaks Chinese and Tibetan equally well, is about fifty-seven years old, and has passed through a great deal of trouble. She is chief of one of the Horba states, and formerly resided with her husband in Kianggu. At that time he was the most important and powerful chief of Horba. Sixteen years ago he was murdered by his own people. Owing to the difficulties of finding a successor, the Chinese Government settled the trouble by appointing a Chinese official to the position, and he is now nominally in charge of the Horba states. The Matse queen-widow, with her infant child, was allowed to reside near Dawo, where she reigns over two hundred families. Thus the greatest of the Horba states has become one of the smallest. On our arrival at Kianggu on the 11th of June we called on the official, who is still living in the old chief's building as the Chinese Government has not yet been able to build him a yamen. The official, as usual, exhorted us not to go beyond Kianggu; but he was not so determined in his objections as in former years, and finally, after having given us a feast, agreed to, and made arrangements for, our journey beyond. Kianggu is a village of about the same size as Dawo, with the only difference that the Tibetans here are all of one clan, and, since they murdered their chief, have been under control of the Chinese official. There is a large monastery, as at Dawo, connected with the village where there are 3,000 lamas. Kianggu, so far as I know, is the only place in the whole of Eastern Tibet where there is a nunnery connected with the lamasary. It was first built at Gantse by the Tsaga lama, a very rich incarnation, but the Gantse lamas had objections and destroyed his buildings by fire; he was later permitted to build at Kianggu, not far from the village. There are two hundred nuns, mostly old women, many of them looking almost imbecile, sitting outside their mud huts or walking about with their prayer wheels. They all shave their heads and use the same kind of garments as the lamas, of whom there are one hundred in the same place. The head lama received us in a friendly way, and allowed us to enter his private room, where we had a long conversation together. He was especially interested in hearing our opinion regarding "Transmigration." He had heard we had nuns in our country, which gave me the opportunity of telling him about our nurses and the good his nuns might do if trained in similar work.

Chuwo is the third state in Horba; there is only a small Tibetan village connected with the large castle in which the chief resides. He is a young man about thirty years old. We called on him, but he did not receive us in a friendly way; gave us no tea, and did not even ask us to sit down. When we spoke to him he never replied, but some of his attendants answered my questions. He seemed quite relieved when we left him, and spoke for the first time, saying "Walk slowly," i.e. "Good-bye."

At Chuwo we leave the Da-Chu River, the road goes southwest over part of the Chantui pasture land—a district noted for robbery—then turns west again down the valley of the Gantse, where the road continues along the Nia-Chu River. This is one of the most fertile valleys in the whole of Eastern Tibet. It is about fifteen miles long, and three or four miles broad. About fifty villages may be counted along the valley. The Gantse village and lamasary is situated in the upper part of the valley, at an elevation of 11,850 feet. This is the leading and most powerful state in Horba, and is at present ruled by a woman who has deposed her husband. Her two sons are living in lamasary; one is ruler of the church and the other is intended for the state. We were not allowed to enter the village and the Chinese official (Tsong-ye) fearing there might be trouble advised us to cross the Nia-Chu without delay, and to proceed on our journey. He told us that H. E. Chao-Erh-feng, the high commissioner of the Tibetan border, had also been forbidden to enter the village with his soldiers; that he had wisely passed the place without taking any notice of them; but he said when the trouble in Derge is settled there will come a day of reckoning for them.

Beri is the last and the smallest of the states, yet the village contains about two hundred families, all Tibetans, no Chinese or half-castes. We did not meet the chief, as we only remained there for half an hour, and proceeded to Rombatsa, the boundary between Horba and Derge. The union of these five states consists in the intermarriage relations between the chiefs, and also in the mutual reliance on Chantui for advice and help against the Chinese, otherwise one is struck with the bad feeling between the various states and wonder why they should be called the United States of Horba. They are the fighting people of Eastern Tibet, and ancient history is said to chronicle many of the famous kings of Tibet coming from the Horba States.

From Rombatsa may be counted forty villages, all within one day's journey. But this

*From *China's Millions*.

†The system of Ula empowers the Ruler to demand the use of any animals he may need for himself or those traveling in his name or under his sanction, and also places the hospitality of his subjects at his disposal.

is also the western limit of the farming population, hence we enter here the nomad country and no sign of farming is seen till we reach Dergegonchen, the capital of Derge. It is a long stage from Rombatsu to Yilongba, and proved to be too much for one of the horses in the heavy snow storm; he lagged behind, finally gave away and dropped on the road. There are two roads leading from Yilongba to Dergegonchen, one south or south-west, by way of a big pass Kiola, the other west, a few days longer. As our men preferred the latter road, and as I had a great desire to visit what is called on the maps Zochen, we decided on this road. The name of this place is, however, not Zochen, but Tsogchen, which means "Great Perfection," and we were very much disappointed to find it only a small monastery, with a little village of a few mud huts belonging to the servants of the lamasary. There is no farming connected with this place, but a splendid pasture land considering the elevation, which I made to be 12,991 feet. Leaving Tsogchen we traveled west for some time, then made a turn to the south up a small pass. From the pass downwards the road goes south along a river called Halong, a very difficult road; as the river has to be crossed continually, and there are no bridges, we have to depend entirely on our horses. As a rule they are very sure-footed, once only did a horse stumble while crossing a river, and the unfortunate rider received a rather unexpected and cold bath.

After leaving Kolodo, a small village with a few houses, we continued to follow the same river, which is called Ser-Chu, through a lovely valley which leads into the most magnificent gorge about 2,000 feet high. The road through this gorge is both dangerous and difficult, and there is no less than thirteen very primitive wooden bridges to be crossed. We had been warned by the natives of the dangers of this gorge, and were told that some time previous no less than eight Tibetans were drowned in the river—six men and two women. Ammunition and guns belonging to the Chinese army had also been lost. At this place we too had some difficulties. As one of our horses was crossing, an old bridge gave away and the poor beast dropped into the foaming river. We were two hours repairing the bridge before we could get our goods across; our horses had to swim the river. It seems to be the deliberate purpose of the natives to keep these bridges in as poor a condition as possible, so as to be able to destroy them at a moment any moment an invading army enters the gorge. This no doubt is the reason why H. E. Chao Erh-feng has built a new road between Batang and Derge, so as to avoid this dangerous gorge, where an army might be cut off and destroyed in a very short time.

We arrived at Dergegonchen, the capital of Derge, on the 27th of June, and were invited to stay in the lamasary, but as this had already been occupied by Chinese soldiers, we preferred to camp a short distance from the place. Dergegonchen, the great lamasary, is situated in a narrow valley surrounded by very high mountains, and on the south side of the Ser-Chu, which some twenty miles further west runs into the Dre-Chu. The valley is not cultivated, and there are only a few houses, scattered for apart. It is 10,923 feet above sea level. We had expected to find the capital of Derge a large centre for industry and farming, but to our great disappointment we find it is only a lamasary with about 500 lamas, and no village connected with the place at all. In the centre of the lamasary is a magnificent four-storied high building, the residence of the King of Derge, and connected with the lamasary is the famous printing establishment, where the Kang-Gjur* may be bought by Tibetans forthecheap price of Tls. 150.

Derge is the largest States in Eastern Tibet, and has been up to the present an independent little kingdom, though rather inclined to favour the Chinese than the central Tibetan authorities. The whole population of Derge is said to be 40,000 families, the greater part of which are nomads, scattered over such a large area of country that one may travel for days without seeing any sign of people. The boundary of Derge is, in the north, Tsa-chuka, or the Ngolog country; south, Batang; east, the Horba States; and west, Chamdo. The people of Derge are not fighters like the Horba people; they make poor soldiers, and the nomads are deceitful, untrustworthy, and very mean. The villagers are much superior in character, and are the most industrious people of Eastern Tibet. The trouble, which has now lasted for more than four years, is a matter of difference between the king and his younger brother. The natural result of this difference is that the people are divided into two parties, one in favor of the king, the other in favor of his younger brother. The real difficulty, however, is that while they are both children of the same mother, it is said and believed, that the younger brother is not a son of the former king. The younger brother succeeded in expelling the elder brother from the country, and took over the control of the State for four years. Meanwhile, the elder brother has appealed to the Chinese authorities, and it is now with the help of H. E. Chao Erh-feng that he is reinstated as king or chief of Derge. We did not have the pleasure of meeting the king, as he had gone with H. E. Chao Erh-feng to the north of Derge in search of the younger brother, whom they are determined to capture. It was rumored that he had gone to Tsachuka and taken refuge in a monastery. H. E. Chao Erh-feng with 500 Chinese, and 500 Tibetan soldiers in company with the king, succeeded in capturing the place, but the younger brother is still at large. One cannot but admire the ability of H. E. Chao Erh-feng in settling the complicated and difficult matters of these people. As an example, I might mention the plan on which he seems to be working in order to subdue the whole of Eastern Tibet. While Chantui, Gantse, and Draya are his greatest enemies and causing him the most trouble, he is simply leaving them alone, while he is establishing the Chinese authorities in the State of Derge, which is the most favorable to the Chinese. At the same time he is building a road from Derge to Batang, thus connecting the state with China, without having to depend on the road going through Gantse and part of Chantui. His next move, I was told by an authority, is to send his army of 2,000 soldiers to Chamdo, and then he has practically the whole of Eastern Tibet under his control, as his greatest enemies, Chantui, Gantse, and Draya, are being surrounded by his army. If the Chinese Government do not change their plan, there is no doubt that in the near future the whole of Eastern Tibet will be entirely subdued and controlled by China.

Never before had a foreigner entered Dergegonchen, but owing to the number of Chinese soldiers and the friendly way in which the representative of H. E. Chao received us, we were allowed to walk freely about, visiting the king's residence, the lamasary, and the printing establishment. As we had arrived in Derge without official escort, we left the capital without asking for the same, knowing it would not have been given to us if we had told them we intended to go to Chamdo. No doubt the officials were surprised at finding us disappearing as unexpectedly as we had arrived, and I had some fear that they might send soldiers to stop us. However, we were relieved of that fear when we had made our first stage towards the Dre-Chu and rested in the king's summer palace, a place called Chongra, where there are a few houses in the village and some farming. H. E. Chao has appointed a few soldiers to cultivate vegetables; they had succeeded very well, and their garden produced all kinds of Chinese vegetables, including tobacco.

Leaving Chongra we continued to follow the Ser-Chu south for seven more miles till we reached the large river Dre-Chu, which at this place is about 300 feet broad. The river has to be crossed in very small skin boats, somewhat different from those used at Dawo and Gantse, though made on the same principle. It took us about two hours to get our horses and all our belongings across the river to the little village Tsomtog, where there are about fifteen houses. The people here were friendly, but one was struck with the dulness and the absence of merriment and life ordinarily so characteristic of Tibetans. The reason, however, soon appeared. We learned that no less than twenty-eight persons had died there within the last few months, and a few more were dying at the time of our visit. From Tsomtog the road leads through a small gorge into a fertile valley where there are about one hundred and fifty houses widely scattered; then over the Nesla, 14,649 feet, and down to the Warra-Chu River, passing two small villages, Rongsong and Chamda, to Kagong. We arrived on the 5th July at Kagong, the last village in the Derge territory. In passing through the Derge State one is struck with the poverty of the people and the scarcity of population. The smaller valleys contain about ten houses, the larger twenty, and the largest we passed through, fifty. The nomad districts have the larger population, but they are very scattered; as a rule from five to twenty tents together. Lamasaries are plentiful, but not so large as in the Horba States. We had to remain a day at Kagong drying and mending our tents, as we had had such an awful rain the previous day. This delay gave us an opportunity of getting better acquainted with the people of the place, who gathered freely around us. At Kagong we were confronted with some difficulties. Between this place and Chamdo is a journey of nine days through a most difficult and dangerous nomad country, absolutely impassable without a local guide, as for the most part of the journey there is no track whatever to be seen, the grass being in some places as high as one foot, or more. It is dangerous because for two travelling days the country passed through is uninhabited, and is a general hunting place for wild beasts, deer, and lonely travellers. The robbers in these parts are hunters. Tired of the quiet life in the nomad camp, they leave the cattle in charge of the women and children, and go in companies of from four to ten, well armed, and riding the very best horses. Their first purpose is to hunt for deer, but if while on the high table-land they see a hopeful caravan on the plain, they arrange to surround it in the night and rob or kill, according to the opposition they meet with. Our Tibetans were very much afraid to go beyond this place, and told us that all the pilgrims travelling to Lhasa from their district always spoke of this part as the most dangerous on the whole road.

We engaged two local guides, and, depending on them, started into the unknown and hitherto unexplored country. Towards evening we arrived at a rather hostile nomad camp, consisting of about thirty tents. This was the first day we had met with any opposition, and matters looked rather grave in the beginning, though finally, after much talking, we came to an understanding. They allowed us to camp, and gave us some help with regard to fuel and water. Meanwhile our guides had disappeared, and we found to our great astonishment that, for some reason, we had been led astray, and were not, as we believed, on the road to Chamdo at all. Nor was this the only trouble. In the morning, when we prepared to leave, all the Tibetans gathered together for consultation, and when they started with smiling faces and in loud voices to chant their prayers, I knew danger was imminent, and prayed that we might be kept calm. They demanded money before they would let us depart. We paid accordingly, and they made a further demand. This we also gave them, but when they were yet unwilling to give us a guide and made another demand for money my Tibetan colporteur prepared to resist them. This I knew would be a very dangerous mistake, as I fully believed the Tibetans were only waiting for an opportunity to attack us. We therefore paid their third demand, and started on our return journey, while once more the Tibetans began to chant their prayers in a very excited and loud voice. We were thankful to leave these hostile and unfriendly people without any further trouble, and more so when a little while after one of them turned up willing to go with us as guide one day's journey.

We had to return by the way we came the previous day to the Tsochu monastery, then turning south-west, over the Kelela Pass, 15,300 feet, again south to the nomad camp Soreh, where there are about forty tents scattered over the table-land at an elevation of 14,000 feet, at which altitude I found it a little difficult to sleep well during the night. The nomads of

*The Lamist Scriptures.

this district were more friendly, they came freely about us, and, after some time, were also willing to sell us milk, butter, and meat. We also succeeded in getting a guide to go with us all the way to Chamdo, though only on the condition that we paid him in advance. In these parts of Tibet it is not for us to make the terms and conditions, we are entirely at the mercy of the people

Having crossed the Karala Pass 15,750 feet, we passed another nomad camp in the Kjor-Gong (? Kagong) district, and entered the uninhabited grass country. Suddenly four well-armed Tibetans came riding towards us, and, without speaking to us, tried to drive some of our animals in front of them. We gave orders to halt, and pretended to camp for the night, the Tibetans watching us for a while, then they proceeded on their journey. When they were well out of sight, we started again and continued travelling until we got to a suitable place for camping, where we had plenty of water and grass for the horses. Later in the afternoon a party of lama pilgrims arrived and camped close by our tents. They were exceedingly pleased to learn that we were going to Chamdo, and asked for permission to travel with us through this part of the country. We were also glad to have our party increased, and our Tibetans began to feel relieved regarding the four robbers we had met during the day. They now began to speak more freely about them, and said they knew for certain they were robbers and that they had made an attempt to take our horses. As we were thus sitting talking over this matter, the same four Tibetans turned up again, and our men, having got more courage now as our party was increased, asked them where they were going and what they were doing. In reply to which they said—as they rode along—that they were out hunting. We spent the evening together with the lamas, who had many stories to tell about their fights and troubles with the robbers, as seemed evident by the marks on their faces. One of them had unfortunately lost his eyes on a former pilgrim journey to Lhasa. As we were preparing to go to sleep, the lamas and our Tibetans began some awful yelling, as if they were getting mad or at least very drunk, and it made me wonder what was coming, as I was not yet acquainted with this Tibetan characteristic. I was, however, soon told it was their custom in these parts of Tibet in order to keep off wild animals, and also to let robbers know, if there were any in the near vicinity, that here were people too numerous for them to attack. Hence the more yelling the more power. This experience we had to endure night after night till we reached the first village near Chamdo. It was one of the most unpleasant memories of the whole journey, as it reminded me too much of the yells heard in a Chinese mob. We proceeded on our journey the following day in a very heavy hail-storm, thunder and lightning, and encamped in the Bereh district, where we saw a number of bears and a few deer.

Our next camp was Toh. In my diary (12th July) I have written the following:—"To our great surprise this morning we find our guide has run away during the night; fortunately there is a party of pilgrims with us who know the road, and besides, we have now a track to follow. Our road to-day led west for five *li* (about two miles), then a sharp turn to the south, where we ascended the Chabila, a very rough journey and steep climb to the summit, 17,400 feet. At this point, and for hundreds of feet below, there is absolutely no vegetation whatever, only sand, gravel, snow, and ice. Descending the pass was more difficult, and we had to lead our horses down to the small village Reya, where we camped together with a large lama party we had passed the previous day. We had another surprise to-day. While several Tibetans armed and on horseback suddenly turned up, one of our Tibetans called out: "Robbers!" They only looked at us for a while, and then went away in the same direction from which they had come. On the following day we crossed the Tamala, and though it is only 15,750 feet high, yet it proved to be the most difficult pass to cross since leaving Tatsienlu. Descending the pass we again entered a very well cultivated valley, with quite a number of houses, the construction of which were somewhat different from those in Derge. We camped within a few miles of Chamdo, on the top of a hill, at the foot of which we could see the two rivers, the lamasary, and the village. Here we had a very strange and unfortunate experience. While our horses were seemingly enjoying themselves after the long and hard journey, we noticed that one by one they became as though dead drunk, lost all their power of movement, and were unable to eat. They remained in this condition with shut eyes for more than a day. All our attempts to get them to eat and walk were fruitless, and when we asked the natives for advice, they told us the horses had eaten the poisonous grass, and the only remedy would be to give them wine mixed with some of the same grass as they had been eating. This, they said, would relieve them of their pain, but although we carried out the instructions, some of our horses died, while the others remained in a very poor condition. For this and other reasons I thought it better not to go beyond Chamdo.

Hence we changed the original plan, and early in the morning of the 14th July sent Mr. Yang, the evangelist, into Chamdo to inform the official of our coming, and to ask him if it was possible to get a house or if we should have to camp. Mr. Yang did not return, but a soldier was sent to our camp with word from the official that a house was made ready for us in the next village. It was raining when we entered Chamdo, but as soon as we were in sight the whole village—men, women, and children—were all in a great excitement, wanting to get a look at the first foreigner ever seen in Chamdo. The officials were no less excited and surprised at our coming, specially as we were without Chinese or Tibetan escorts. When the word reached the military official as he sat at meal, he told us he was so surprised that he dropped his basin of rice, wondering what the lamas would do to us. The officials were friendly and obliging, but made us understand that it was their duty to send us back to China, as they had received instructions from the Foreign Office to this effect. The military officials, however, said that if we insisted on going forward, he would give us an escort, but the journey must be taken entirely on our own responsibility. It may be as surprising to others as it was to myself to learn that Chamdo is not part of Lhasa territory, and is in no way under the Lhasa authority, but is an independent State with a Government on the Lhasa principle; one incarnated lama as ruler of State and church, with three chief lamas as his ministers residing within the enormous lamasary of Chamdo. There is in connection with this ministry in all twenty-four lay magistrates throughout the whole state of Chamdo, governing a population said to be 80,000 families. The Chamdo Government sends a mission with tribute every six years to the Emperor of China; if the advantage were not on the Tibetan side, there certainly would be no tribute sent to Peking, but now we are told, the presents they receive in return from the Emperor are much more valuable than the tribute they bring, besides the great advantages for trade which are offered by such a mission.

Chamdo is the largest and most important place between Tatsienlu and Lhasa, and is situated on a large plain between the rivers Tsa-Chu and Non-Chu, at an elevation of 11,472 (? 11,712) feet above the sea level. The lamasary, which is the greatest in Eastern Tibet, has only got 3,000 lamas, but the temples and buildings are at least ten times as large as any of the larger monasteries we have passed on our journey. It is situated on a hill, and looks like a city of 14,000 inhabitants. Chinese and people in general are not allowed to enter this sacred place without previous arrangements with the proper authorities. The village, which is at the foot of the monastery, has a population of four hundred Tibetans, and three hundred Chinese or half caste, besides one hundred and thirty Chinese soldiers under the command of a military *T'ongling**. The respective yamens of the *T'ongling* and the *Liangtai,** as well as the soldiers' dwellings, are all surrounded by a fairly high mud wall, though the village itself is without a wall. There is one large and several small streets in the village. We were greatly impressed with the cleanness of the place. There is also a small Mohammedan mosque with about forty families. The Chinese are absolutely powerless in Chamdo; they have to serve the lamasary; and even the Chinese soldiers are not exempted from these taxes. In case of trouble between Chinese and Tibetans, the latter decide the cases, and any appeal to the Chinese mandarin is of no avail. The Chinese soldiers told us that up to recently it was quite common to see Chinese beaten by Tibetans in the village, and the mandarin confirmed this statement by saying that they, the Chinese, had not been able to lift up their heads. However, they all agreed that their standing had been much improved since H. E. Chao had been appointed High Commissioner of the Tibetan border, and they were hoping the time would soon come when they should not be obliged to serve the lamasary. This, they added, is the only place in the whole of Tibet where such compulsory service is demanded from the Chinese. There is also a great deal of unrest amongst the Tibetans in these and other parts of Tibet owing to the appointment of H. E. Chao, whom they fear and hate, and everywhere they are preparing and drilling soldiers, and in some parts they have already declared their independence and are refusing to give Ula or cattle and horses for the convenience of Chinese travelling in Tibet. The Nepaulese tribute expedition arrived in Chamdo the day after our arrival, and increased the life and business of the quiet city considerably. Merchandise from Peking and Calcutta, Lhasa and Tatsienlu, were all for sale in Chamdo, the centre and heart of Tibet. Food is also plentiful and easily obtained, such as rice, flour, tsamba, beans; and various kinds of vegetables, mutton, beef, chicken, eggs, and fish can also be had daily. The lamas by this time were very much concerned about our movements, and sent constantly messengers to the yamen inquiring about us, why we had come to this place and what we were going to do. They also told the mandarin that if they had heard of our coming they would certainly have sent soldiers preventing us from entering the Chamdo territory. The *Liangtai*, fearing there might be some trouble, had already sent a special runner to Batang, informing the mandarin and asking him to send a special guard of soldiers to meet us at Draya, consequently arrangements were made for us to return by Draya to Batang. As we were leaving on the morning of the 17th July, the mandarin overtook us at the bridge and told us he had just received word from the official in Kiangka that there was trouble, and it would not be safe for us to travel that way. There was nothing else for us to do but to return by Derge, which meant another ten days' travelling and camping in that most dangerous and difficult country. However, the mandarin gave us an escort of four Chinese or half-caste soldiers, besides two Tibetans given us by the lamasary. We had been able to distribute in every village and nomad camp through the Horba States, Derge, and up to Chamdo, five hundred copies of the Gospels, and the three days we remained in Chamdo we had no difficulty in distributing the remaining five hundred copies. We hope and trust this work has not been in vain.

The return journey to the capital of Derge proved more convenient now as we had a Chinese and Tibetan escort. In my Chinese and Tibetan passport was written: "Two Chinese officials (the evangelist and myself) returning from Lhasa with important documents." In some places I overheard the Tibetans conversing and asking, pointing to me: "Is this a Chinaman?" The others replied: "They say so, but *Nga-Tso Ha Ma Go.*" In the districts where a Chinaman never had been seen there is no doubt I passed for a Chinese official returning from Lhasa. The changeableness of the weather was quite remarkable. In the early morning we might have the finest sunshine, and a few hours later a very heavy snow or hail storm; thus the weather might be changing several times a day. This kind of weather seemed to be hardest on the animals, and we had, unfortunately, to leave one of the horses behind in a nomad camp, as he was unable to follow us any longer. When we arrived in Derge

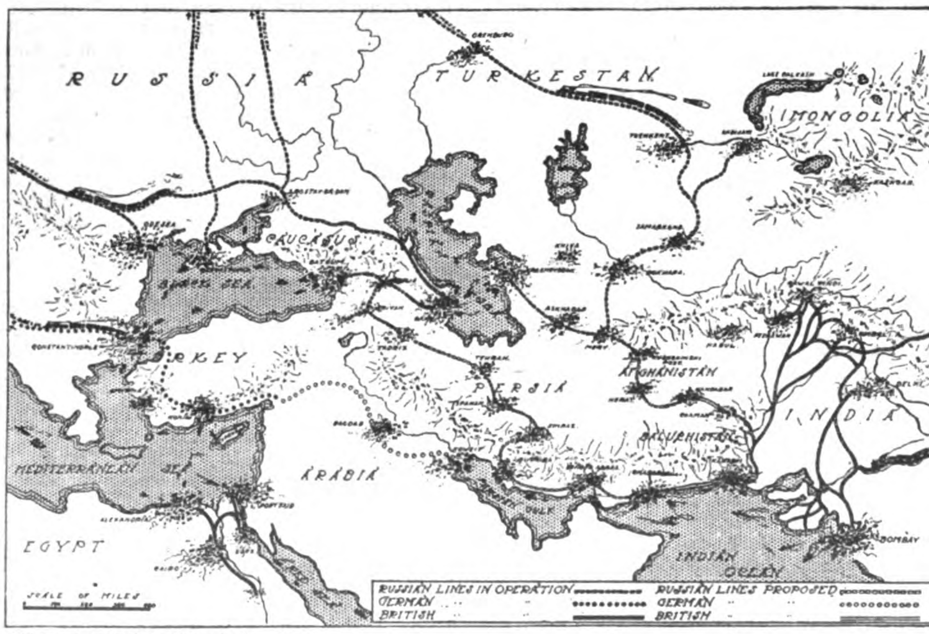
*Two military officials.

the representative of H. E. Chao expressed his surprise at our daring attempt to enter those wild regions of Tibet, and was glad we had been able to make the journey without any difficulties. We decided to return to Tatsienlu *via* Batang, as this would give us an opportunity of visiting Horbo, the famous district in Derge for work in teapots, saddles, swords, and guns. We were, however, greatly disappointed, as we found the village did not exceed the usual number of from ten to fifteen houses. There is no special village or place where this work is done; it is a home industry, carried on by individual farmers in the Horbo district in their spare moments. At this place the Dre-Chu makes a sharp turn to the west and is never seen again till we meet it ten miles below Batang. The new road, made by order of H. E. Chao, makes travelling very comfortable between the capital of Derge and Batang, and with the exception of Lhakiala, 16,150 feet high, the other two small passes are not worth mentioning. The Derge territory extends up to the Dashi boundary, within three days' journey of Batang. We had the privilege of staying with the Dashi chief, who resides in a grand four-storied high building. He is the ruler of a very small territory with three hundred families, and is said to be paying a yearly tribute to the Derge State, though otherwise independent of Derge.

It was with joy and pleasure we arrived in Batang late in the evening of the 3rd August, after a very heavy day of rain, and as I entered the village I could not refrain from saying aloud "Bless the Lord, O my soul, and forget not all His benefits." I shall never forget the kindness shown me by Dr. Lofties, who came in the rain and met me, and insisted upon me going to stay with him in the hospital where he was living at that time. It was the same night he took ill, and he was never again to get out of his bed. He died not many days after as a result of typhus and small-pox, which he contracted while attending his patients.

The road between Batang and Tatsienlu is good, but the journey was tedious, as, except in and around Litang, Hokeo, and Tongngolog there are neither people nor cattle to be seen. It is no wonder that seventy per cent. of all the Tibetan trade goes by the northern road. We stayed in the Litang lamasary and got permission to visit the templeand printing establishment, which we found to be somewhat smaller than that of Derge. The Kang-Gjur is here printed in red, while in Derge it is the black print. The lamasary was a disappointment. From all reports we expected to find something enormous, but it proved to be the smallest of any of the larger monasteries we had passed on this journey. We visited some, and passed in all twenty-two lamasaries, of which four alone represented 12,000 lamas, or the twenty-two lamasaries together a number of about 24,000 lamas. The religious aspect of these lamasaries is of least importance. Only a few of the lamas are set apart to attend to the religious services, while the others are taken up with the financial and political part of the work. The lamas are first of all the rulers of the country; second, they are the great trading companies; third, the lamasaries are the fortifications of the country, and the lamas are the real standing army of Tibet. This lama-system is the most difficult problem for the Chinese Government to solve, and is the greatest hindrance in mission work.

It was interesting to see Tongngolog again. It is a fertile place, with about seventy families living in the whole valley. When I first visited this place, ten years ago, Mr. and Mrs. Amundsen were then stationed here in a small Tibetan house. In all these years the place has remained the same, no alteration and no change, with the exception of the Government rest-house which has been added to the village. We were glad and thankful to get back to Tatsienlu on the 25th August, after a mission journey of more than eighty days riding on horseback through practically the whole of Eastern Tibet.



(*From Everybody's Magazine.*)

CENTRAL ASIAN RAILWAYS.—MAP SHOWING THE GERMAN AND THE TWO RUSSIAN RAILROADS NOW PROGRESSING TOWARD THE INDIAN OCEAN. ALSO THE ENGLISH RAILROADS IN NORTHWESTERN INDIA

RAILWAY PROJECTS FROM BURMA INTO CHINA

(The railway problem between Burma and Yunnan and its bearing on Britain's future trade with the upper Yangtsze Valley, forms the main subject of Major H. R. Davies' book, entitled "Yun-nan, the Link Between India and the Yangtsze." As Major Davies and his party made the reconnaissance for this road, in the interests of the Government of India, and the Yunnan Company, his book is therefore authoritative, and will stand for many years as the last word on this project. The recent completion of the French Railway to Yunnanfu, drawing the trade of the province to their port of Hanoi, and its possible extension northwards under Chinese capital, connecting with the Hankow-Szechuen line, is a formidable obstacle to the fulfillment of British aspirations. As the Yunnan Railway develops the trade of the Province, French goods will gradually monopolize the market, and as time passes, the door of opportunity will be closed to Britain, in spite of the honest application of the Open Door principle. As with the Japanese in Manchuria, the French in Yunnan, owing to their commanding position, will diminish the commerce of the Province. This possibility is one which must be viewed with solicitude by the Government of India; as unless some effort is quickly made to open up communication with Yunnan from their side, the future trade of the great Upper Yangtsze Valley will gravitate towards Hanoi, as it is several hundred miles nearer than Shanghai.)—*Ed. Note.*

The idea of drawing the trade of Western China towards Burma is by no means a new one. To Captain Sprye is due the credit of being the originator of the scheme, for as long ago as 1831 he drew attention to the advantages of our position in Burma as a means of attracting to our sea ports some of the commerce of the land-locked province of Yun-nan.

In those days railways were not thought of, and it was at first only the opening of a trade route that Captain Sprye proposed. In later years he advocated a survey for a railway line from Rangoon into Siam, and thence northwards to Keng Tung and Keng Hung (lat. 22°, long. 100° 50'). Captain Sprye's proposals, though they had many supporters among the higher officials in British Burma, were not approved of by the Government of India, and nothing more was undertaken than a survey of a line from Rangoon northwards to Toungoo.

The Yun-nan railway question was again revived about 1867 when it became known that the Upper Irrawaddy could be navigated by steamers as far as Bhamo. This town is situated close to the Chinese frontier and it naturally suggested itself that this would be the best route for establishing a trade with Yun-nan. The road from Bhamo to Yun-nan Fu had not been explored by Europeans since the time of Marco Polo, and it seems to have been hoped that a line for a railway might be found in this direction.

This idea was at once dispelled when the reports of Margary and Baber showed that the high mountain ranges and deep valleys which cross the road from T'eng-yueh T'ing to Ta-li Fu would make the route quite impracticable for a railway. Baber's remarks were in some cases so emphatic as to create among those who had not studied the subject very deeply an impression that any railway through Yun-nan was impossible.

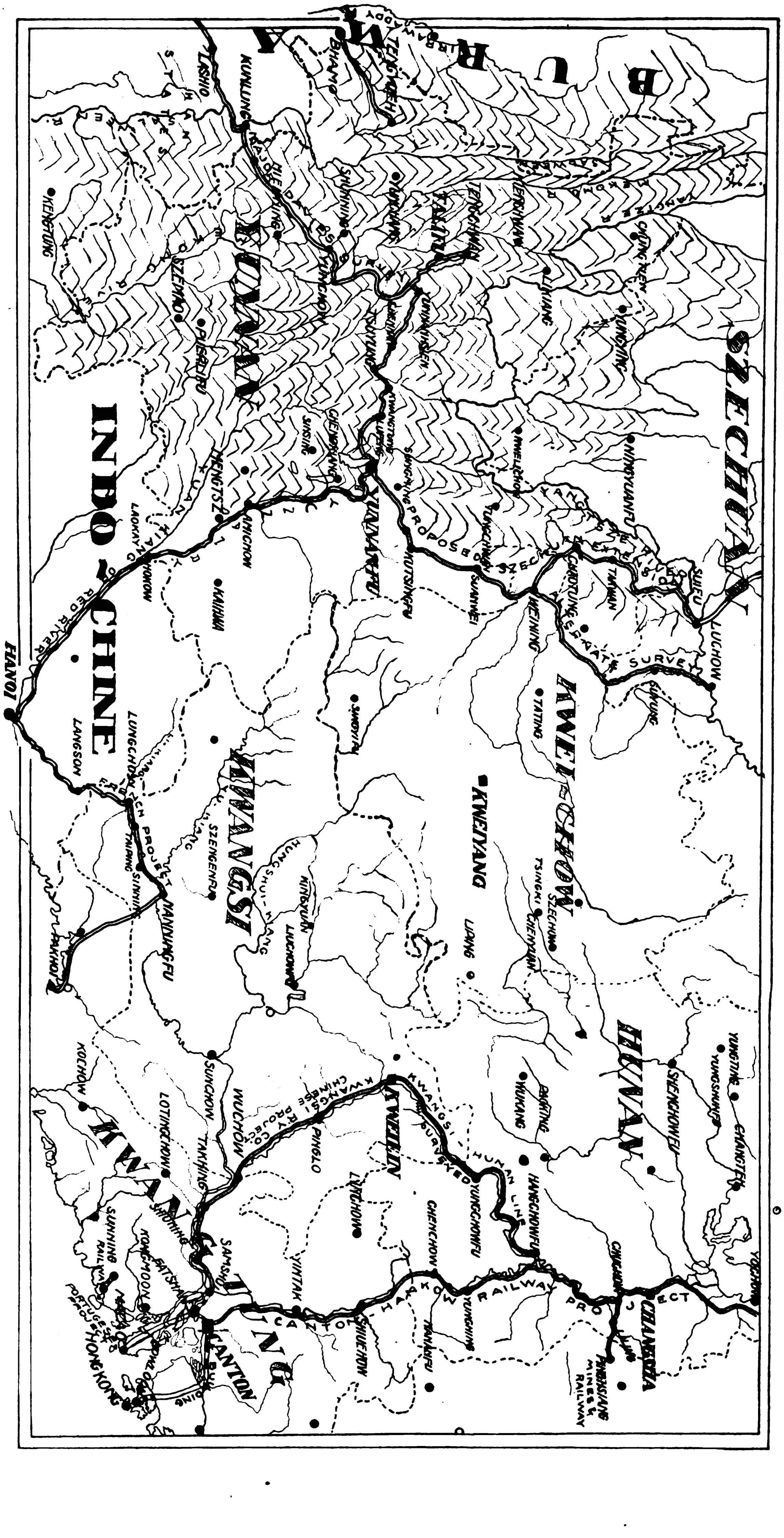
Of the high range between the Salween and the Shweli he remarks, "If British trade ever adopts this track, we shall be delighted and astounded in about equal proportions." In another place he says, "By piercing half a dozen Mont Cenis tunnels and erecting a few Menai bridges, the road from Burma to Yun-nan Fu could doubtless be much improved."

Allowing for the slight exaggeration which no one will grudge to a writer of Baber's talents, this description does give an idea of the difficulties of parts of this road. But these remarks were made about the road from Bhamo via T'eng-yuen T'ing and Ta-li Fu to Yun-nan Fu, a line which no one now advocates as possible for a railway. If those who think Baber was therefore opposed to any railway construction, they will see that Baber himself suggests the very line of approach that has now been adopted.

About 1881 a fresh scheme, based on the proposals of Captain Sprye but differing somewhat in the line taken, was brought forward by Mr. A. R. Colquhoun and Mr. Holt S. Hallett. This line was to start from Moulmein, a port which lies in Lower Burma at the mouth of the Salween. From there it was to run eastward to Raheng in Siam, and thence north up the Menam valley, and through Keng Tung and Keng Hung to Ssu-mao T'ing in the southern part of Yun-nan (lat.. 22° 50', long. 101°).

As far as the physical difficulties of the country are concerned, this was probably the best line that could be found, though from Ssu-mao onwards difficulties would begin. The principal objection to it was that it ran mainly through Siamese territory and would therefore do more to develop Siam than our own possessions. Still, as long as our rule extended only over Lower Burma, this line seemed the only means of getting communication with Western China.

The annexation of Upper Burma in 1885 changed all this. A railway had already been carried northwards from Rangoon as far as Toungoo, and by 1889 the extension to Man-



MAP SHOWING PROPOSED RAILWAY BETWEEN BURMA AND CHINA, THE PROPOSED EXTENSION OF THE FRENCH LINE FROM YUNNANFU TO SUCHOW AS WELL AS THE ROUTE OF THE KWANGSI RAILWAY

dalay was completed. Meanwhile the Shan States, which lie to the east of Burma and had been tributary to the Burmese king, were explored by our columns. They found here a peaceful trading population and our rule was established without any serious fighting.

The development of the Shan States then naturally engaged the attention of the Government. Surveys for a line were carried out by Mr. Bagley, and the great engineering difficulties of the rise from the Irrawaddy plain were overcome. The line starting from Myohaung, a little south of Mandalay, passes through Maymyo and Thibaw to Lashio, the capital of the Northern Shan States (lat. 23°, long. 97° 45'). The railway was completed up to this point in 1902 and Lashio is still the terminus.

From here the line could easily be carried on to Mong Yaw and a survey has been made of the 75 miles which separate this place from Kun-long Ferry on the Salween (lat. 23° 25', long. 98° 40'). Though the railway is likely to stop at Lashio for the present, it would doubtless be at once extended to Kun-long if the construction of a line through Yun-nan was undertaken.

The existence of this railway through the Shan States has much simplified the problem of communication with Yun-nan by definitely deciding the direction which such an extension should take. Whatever may originally have been the merits of the proposals of Mr. Colquhoun and Mr. Hallett, their line cannot now compete with an extension of the Kun-long railway. From Moulmein to Ssu-mao T'ing is a distance of 700 miles: from Kun-long to Yun Chou (lat. 24° 30', long. 100° 10') is only 145 miles. Moreover Yun Chou is better placed than Ssu-mao for drawing the trade of Yun-nan.

THE YUN-NAN RAILWAY

The original proposers of the Yun-nan Railway had in their minds simply the drawing of the trade of that province towards Burma. It was then hardly realized that beyond Yun-nan lay a far richer and more populous province—that of Ssu-ch'uan. The eventual object of any railway scheme now proposed must be not merely the encouragement of local trade across the Burmese frontier, but the attainment of a through route from India to Ssu-ch'uan and to Eastern China.

It was with this view that in 1898 the Yun-nan Company determined to send out an expedition to reconnoitre for a railway line to connect Kun-long on the Burmese border with some point on the Upper Yangtze to which boats can ascend. Of this expedition I had the good fortune to be in charge, but I do not propose in this chapter to go into details, but merely to confine myself to the general conclusions arrived at.

All that will be necessary here then will be to state as shortly as possible the results of our work.

1. A reconnoissance was made for a railway starting from Kunlong on the Burmese frontier and reaching the Yangtze either at Sui Fu (lat. 28° 45', long. 105° 25'). (The route reconnoitred is shown on the accompanying map.)

2. The total distance from Kun-long to the Yangtze is 1,000 miles. The greater part of the line would traverse exceedingly difficult country, necessitating in places a grade as steep as one in 25 and possibly a few short lengths of rack. The total cost of a metre gauge line would be perhaps £15,000,000 to £20,000,000 and the time required for construction would be at least ten years.

3. Though there are great possibilities of future trade, the province of Yun-nan is, owing to bad communications, at present so little developed that the railway cannot be made as an immediately paying commercial speculation.

Under such circumstances commercial men are not likely to put their money into a scheme in a foreign country for which such a large sum would be required without any probability of a profit for some years. A guarantee from the British Government of even a low rate of interest would doubtless produce the necessary money. The question therefore resolves itself into this. Is it worth the while of the British Government to spend money on the construction of the whole or any part of the Yun-nan Railway?

The purposes of such a line would be two-fold:

1. To draw the trade of Yun-nan towards Burma, and thereby prevent the trade of Western Yun-nan being taken from us by the French.

2. To reach the rich province of Ssu-ch'uan, there to connect in the future with the projected Hankow-Ch'eng-tu railway, thus forming a through route between India and Shanghai—a link in the grand trunk line which will doubtless some day connect Calais with Eastern China via India.

It will be convenient to consider first the second of these two objects. As far as the Ssu-ch'uan, trade is concerned it does not seem likely that the Yun-nan Railway can compete in the more bulky class of goods against a line coming from the east. While the long, costly, and risky boat journey up the Yangtze gorges remained the only means of bringing foreign goods into Ssu-ch'uan, the Yun-nan Railway might have hoped to draw the trade of this province towards Burma. But now this state of things seems likely to come to an end, for Ssu-ch'uan in the course of a few years will probably be approached by a railway coming from the east.

To find a practicable line from Hankow to Ch'ung-k'ing and Ch'eng-tu has not been an easy task. Many routes were tried and found impracticable, but the perseverance of Colonel Manifold and those who worked with him has overcome these difficulties, and a route has been discovered which is reported to be feasible.

Now cotton cloth and yarn are the principal imports into Ssu-ch'uan, and these come chiefly from Bombay. Let us therefore take Bombay as a starting-point and compare the two routes.

The approach to Ssu-ch'uan by the eastern line entails a somewhat long sea journey of 4,700 miles to Shanghai. But it would not always be necessary to break cargo here. For half a year large ocean-going ships can reach Hankow 600 miles up the Yangtze, and there is no season of the year when ships drawing 10 feet cannot navigate the river up to this point. Cargo could therefore be carried in seagoing ships straight from Bombay to Hankow.

From Hankow to Ch'eng-tu via Ch'ung-k'ing would be about 1,100 miles by rail. A direct railway from Hankow to Ch'eng-tu without touching Ch'ung-k'ing would materially shorten this distance, but as the line via Ch'ung-k'ing seems the more likely to be first constructed, it will be well to reckon the distance at 1,100 miles.

Taking now the Yun-nan route, the voyage by sea from Bombay to Rangoon is only 2,150 miles, but from Rangoon to Ch'eng-tu by rail would be some 1,600 miles.

Sea freights are so cheap compared to railway rates that these extra 550 miles of land travelling are likely to more than counterbalance the advantage of the shorter sea voyage. It should also be remembered that the cost of construction of the eastern line and its working expenses are likely to be less per mile than those of the Yun-nan Railway.

The construction, however, of the Hankow-Ch'eng-tu railway would cut both ways. Though it would probably carry a large part of the trade of Scu-ch'uan, it would at the same time add greatly to the traffic on the Yun-nan Railway, for the two lines together would form the shortest route between India and Eastern China.

This brings us to the question of a through railway route from India to China. In an age when railways are penetrating to the most out-of-the-way places in the earth, it is impossible to suppose that India and China—the two most populous countries in the world—will be content to remain side by side without being connected by railway. I think I am quite safe in asserting that any such railway must pass through Yun-nan.

I do not know that any route passing further to the north, through Tibet or Chinese Turkestan, has ever been suggested. The great height of the mountains and the very long stretches of extremely poor country would, I think, make any such project impracticable. We are then driven to the conclusion that it is only through Yun-nan that India can be linked to the Yangtze and to Eastern China.

Now the first railway to penetrate Yun-nan will undoubtedly be the French line from Tong-king (see map) which is at the present moment actually in course of construction. When the French railway has reached Yun-nan Fu, the capital of the province, it is not likely to stop there. The country between Yun-nan Fu and the navigable part of the Yangtze is so difficult that I do not suggest that this part of the line would be immediately taken in hand. But there can be little doubt that extensions would eventually take place not only to the east, but also to the west.

A Frenchman who has been recently travelling in Yun-nan on an official mission points to Ta-li Fu as the goal of a western extension of the French railway, and places the future western limit of French influence and French commerce at the Mekong (long. 99° 30'). It must be remembered too in this connection that the country between Ta-li Fu and Yun-nan Fu is on the whole less difficult for railway construction than most other parts of the province.

If then we are content to postpone the idea of constructing a railway from Burma into Yun-nan, the fact has to be faced that in the meantime the French will have got possession of all that part of the future Burma-Yangtze line which lies east of Ta-li Fu, or, to put it in figures, about 700 miles out of the total of 1,000 miles will be in foreign hands. Moreover the trade of even Western Yun-nan, the richest part of the province, is likely to find its way to Tong-king instead of as at present to Burma.

As the owners of the Indian Empire and the possessors of by far the largest share of the foreign trade of China, we can hardly remain indifferent spectators of the construction by foreign powers of the connecting link between these two countries, nor can we well sit still and see the trade of Western Yun-nan snatched from our very doors.

I am not alluding here to political rivalry. The break-up of China which once seemed so imminent appears likely to be altogether avoided. If in spite of appearances such a catastrophe should take place, the political influence in any particular province will naturally go to those who have spent their money and labor in developing it.

But it is not on political grounds that I would base arguments in favor of the Yun-nan Railway. The construction by the French of their line from Tong-king to Yun-nan Fu and its subsequent extension both to the east and to the west are matters of most legitimate commercial enterprise. The most difficult part of the Yun-nan Railway would be that which lies between Yun-nan Fu and the Yangtze, and here, it must be remembered, the French are in no better a position than ourselves. Here both nations have to face the same difficulties. The French Government have not hesitated to give their support both moral and financial to the undertaking. If the British Government decline to follow this example, they must also be prepared to lose in the future the advantages of such a policy.

It is not my intention to pose as an adviser of the Government but merely to state the facts. The Foreign Office have all the threads in their hands, and can best judge whether the expense would be justified by the end.

I would, however, remark that there is a middle course which I believe would be the best to adopt. I do not think that it would be necessary, or even desirable, that the whole line from the Burmese frontier to the Yangtze should be undertaken at once. Such a project is too vast to be carried through in any way but by gradual stages.

My suggestion is that for the present the Burma railway should be extended from Lashio to Kun-long, and the Yun-nan Railway constructed from Kun-long to Yun Chou.

This town could be reached in about 145 miles from Kun-long at a cost of about £1,500,000 to £2,000,000. It is the commercial centre of a district which suffers much from want of communications with good markets. An extension of our railway system to Yun Chou will bring within range of Burma many parts of Yun-nan hitherto inaccessible, and will materially shorten the distance to places which already trade with us.

At present nearly all our trade with Yun-nan comes through Bhamo. The following table gives the comparative distances from Bhamo and from Yun Chou to different places in Yun-nan.

	To Bhamo.	*To Yun Chou*
From Teng-yuen T'ing	112	161
From Yung-ch'ang Fu	173	100
From Hsia-kuan (near Ta-li Fu)	271	109
From Ch'u-hsiung Fu	394	232
From Yun-nan Fu	491	329
From Ssu-mao T'ing	434	185

But the improvement of the trade between Burma and Yun-nan would be only one object of this extension to Yun Chou. It would also be the first step in the joining by railway of India with Shanghai. Having thus given an earnest of our intention to connect Burma with Yun-nan Fu, we should be in a position to enter into negotiation with the French for a joint construction of that part of the line which would join Yun-nan Fu to the Yangtze.

To come now to the question of the trade of Yun-nan. The most prosperous part of the province is that which comprises the series of fine plains which lie to the north, the east, and the south of Ta-li Fu (lat. 25° 42′, long. 100° 10′). The commercial centre of this region is Hsia-kuan, which lies eight miles south of Ta-li Fu. All this country and even places south considerably to the east of this are at present supplied from Burma, for from Hsia-kuan to Lao-kai on the Tong-king border is considerably further than from Hsia-kuan to Bhamo.

When the French railway is completed from Tong-king to Yun-nan Fu, while the Burma railway terminus is still at Lashio, this advantage will disappear. For from Hsia-kuan to Bhamo is 280 miles against 220 miles from Hsia-kuan to Yun-nan Fu. I have taken Hsia-kuan as an instance, but naturally with the trade of Hsia-kuan would lie nearer to Yun-nan Fu than to Bhamo or Lashio.

If we sit still and do nothing, we shall therefore lose the trade of a great part of even Western Yun-nan. But if we construct our railway even as far as Yun-Chou, we shall easily retain this, for from Hsia-kuan to Yun-nan Fu the French terminus is 220 miles, and from Hsia-kuan to Yun Chou 109 miles.

There is, however, another railway project which must be noticed here—the proposed line from Bhamo to T'eng-yueh (Momien) (lat. 25°, long. 98° 30′). A survey of this route has been made; the distance by the line that a railway would follow is 122 miles and the approximate cost is estimated at less than a million pounds.

Though there is no railway at present at Bhamo, this place is connected by river steamers with Rangoon and with the railway system of Burma at Katha, and would thus form a suitable starting-point for a railway into Yun-nan. It is moreover by the Bhamo route that most of the present trade between Yun-nan and Burma is carried on, and the line would thus have the advantage of following a well-established trade route.

The construction of a railway between Bhamo and T'eng-yueh would be, comparatively speaking, an easy and cheap undertaking, and it would doubtless pay after a time. Taken by itself it would be a most useful line, but before committing ourselves to its construction and the abandonment of the Kun-long-Yun Chou route, it is essential to ascertain whether an extension eastward to Hsia-kuan is possible.

In the north-east corner of the T'eng-yueh plain there is a gap in the hills through which the line could probably reach the Shweli from the Salween, and beyond this the valley of the Mekong running between wall-like ranges of hills, are likely to prove extremely difficult obstacles to the further progress of a railway. It would not, however, be safe to pronounce these obstacles insurmountable until the results of further reconnaissances of this country are made public.

A line to T'eng-yueh only (if extension eastward proves impossible) not only does not get us any further in the joining of India and Eastern China, but it is extremely doubtful if it would be effective in retaining for us the trade of Hsia-kuan, a place which I have already mentioned as the most important commercial centre in Yun-nan. The distance from T'eng-yueh to Hsia-kuan is 159 miles and from Yun-nan Fu to Hsia-kuan 220 miles. The balance of 61 miles is perhaps enough to ensure the retention of this trade for the present, but it must be borne in mind that the French by extending their line westward can bring the advantage in distance over to their side.

Moreover Yun Chou is much more favorably situated than T'eng-yueh for increasing our trade with Yun-nan. T'eng-yueh is already connected with Bhamo by a mile road which has been shortened and improved in the last few years. Were the railway extended to Yun-Chou the trade between T'eng-yueh and Bhamo would doubtless continue as usual. But Yun Chou is so situated as to be much nearer than T'eng-yueh to many places which trade with us already, and to many more with which we at present have practically no dealings. Yun Chou has also the great advantage that, lying as it does far to the eastward of T'eng-yueh, it is in a much better position than the latter town to compete with the French railway.

The following table of distances will make this clear:

	Distance in miles to T'engyueh.	*Distance in miles to Yun Chou.*
From Yung-ch'ang Fu	61	100
From Yun-lung Chou	122	180
From Hsia-kuan	159	109
From Li-chiang Fu	264	222
From Shun-ning Fu	137	24
From Ching-tung T'ing	263	102
From Mien-ning T'ing	216	55
From Wei-yuan T'ing	268	107
From Ssu-mao T'ing	346	185

It will be seen from this that Yung-ch'ang and Yun-lung are the only two places of any importance which are nearer to T'eng-yueh than to Yun Chou, while in the case of Yung-ch'ang the distance between it and Yun Chou is so small that the Yun Chou railway would be very useful to that place.

Hsia-kuan, the centre of the richest part of Yun-nan, is brought considerably nearer, and the last five places can be brought into trading relations with us where they would hardly be affected by a line to T'eng-yueh.

Still if it turns out that it is feasible to extend the T'eng-yueh line to Hsia-kuan, this route certainly has some advantages. There is no denying the fact that the railway to T'eng-yueh can be much more easily and cheaply constructed than that to Yun Chou. This undoubtedly makes it the more tempting project of the two to statesmen hampered by financial considerations. But, unless the possibility of an extension eastward is proved, it would seem well to think twice before committing ourselves to a merely local line, and renouncing the project of through communication between India and Eastern China.

To summarise shortly the conclusions arrived at:

1. The construction of the whole line from Kun-long to the Yangtze is too vast a project to be undertaken at once.

2. But if we are content to do nothing in the way of railway extension into Yun-nan, the French will in the future be in possession of the greater part of the line which will some day connect India with Eastern China, and will also be in a position to take from us the trade of Western Yun-nan.

3. To counteract this the Burma Railway should be extended from Lashio to Kun-long and the Yun-nan Railway constructed from Kun-long to Yun Chou, with a view to its gradual extension eastwards in the future.

4. If the proposed railway from Bhamo to T'eng-yueh can be extended eastward to Hsia-kuan, it must prove a formidable rival scheme to the Kun-long route, but if T'eng-yueh is to be the terminus it is likely to be ineffective in retaining the trade of even Western Yun-nan.

Before quitting the subject of railways in China, one more question must be touched on. The Chinese have in the last year or two evidently become alarmed at the power which they consider railway concessions are likely to give to foreigners in China. In many parts of the country agitations have been started with the object of getting all railway construction into Chinese hands. Nothing is more natural than that such ideas should prevail, but if foreign diplomatists are content to give way to these opinions, the opening up of China by railways is likely to be considerably delayed. The average Chinaman would be very chary of entrusting his capital to officials to build a railway; moreover the modest rate of interest paid by a railway company would not be likely to satisfy the trading instincts of the Chinese investor. So far the attempts of the officials to raise money for railway construction seem to have been a failure, and in one or two cases extra taxation has been suggested as the only means—a measure hardly likely to make railways popular.

Quite lately, however, (1907) the patriotic desire of the Chinese to construct railways themselves without the aid of either foreign capital or foreign engineers has in some provinces actually resulted in offers of considerable sums of money from leading merchants and others to be invested in railway construction. Whether the money would be forthcoming for such a hazardous investment as the Yun-nan railway must remain doubtful. However, an encouraging sign for the future is to be found in a recent application made by the Viceroy of Yun-nan for the services of an American trained Chinese railway engineer. That all railways in China should eventually be constructed and worked by the Chinese is both natural and inevitable, and if the Chinese Government would undertake the construction of the line from the Burmese border to the Yangtze, it would be a satisfactory solution to all concerned. Two things are necessary—a sufficient number of skilled engineers, and some honest men to be in charge of the finances. Time will doubtless supply the former, but will honest men ever be found?

THE YUNNAN RAILWAY

The completion of this road has been announced. The following information has appeared in *The Times* from a Paris correspondent:

The course of the line was surveyed in 1900 and 1901. It traversed the Nam-ti valley, passing near Meng-tsz, reaching Ami-chu at the 139th mile and Y-Lang-Hsien at the 251st mile with the terminal station at Yunnan, giving a total length 292 miles. The scheme was adopted in 1901 and was estimated to entail an outlay of £3,800,000. The transport of the requisite materials gave rise in the first instance to serious trouble.

The construction of the railway was definitely approved early in 1904, when the works were put in hand. At the date the railway from Haiphong to Lao-Kai was still unfinished, and was not expected to be ready until 1906. This involved a great increase in coal, as the material had to be transported by wagons, barges, and mules. Another difficulty was caused by the scarcity of labour in the country traversed, for contrary to expectations, it was found to be very sparsely inhabited, and workmen had to be brought from places as far distant as Canton and Tientsin. During he month of October, 1906, and throughout the year 1907, when the work was expedited to the utmost, there were not less than 60,000 people employed, 40,000 of whom were actually engaged on the construction. The capital originally estimated to be required was found to be wholly inadequate and the cost has reached £6,600,000. In consequence of an arrangement made with the French Government and the colony of the Indo-China, the requisite funds have been raised, and in spite of serious financial embarrassments, no delay has been caused to the work.

The line is of metre gauge throughout; the maximum gradients between Chen-Kiang and Yunnan are 2.5 per cent, and between Ami-chu and Chen-Kiang they amount to 1.5 per cent. The minimum radius of curves is 5 chains. There are 147 tunnels, with a total length of nearly 9½ miles. The altitude above datum at the starting point at Lao-Kai is 295 ft., while at the 93rd mile it reaches a height of 5,576 ft. From this point the line descends in the direction of Ami-chu, situated at an altitude of 3,486 ft.; it attains at Chen-Kiang an elevation of 5,362 ft., and at Chouci Tan a height of 6,624 ft. At the terminus, at Yunnan, the altitude is 6,186 ft. above datum. The rolling stock now actually in use consists of 51 locomotives, 106 coaches, and 530 trucks and vans.

The railway already obtains an important amount of traffic proceeding in the direction of China. The passenger traffic in 1908 included 61,811 Europeans and 1,478,077 natives, while the receipts for that year reached approximately £120,000.

With the completion of the French railway to Yunnan, the Chinese have demonstrated considerable interest in prolonging the road

northwards towards Szechuen province under their own supervision. This move is undoubtedly intended to forestall any attempt on the part of French interests to claim a concession or right to construct the line. The excessive cost of the Yunnanfu line—over $60,000 gold per mile—with the consequent high maintenance, operating and fixed charges, combine to establish a high passenger and freight tariff, if the line is to yield a fair return on the capital. While the most optimistic French authorities concede that the line will prove highly remunerative if the tariff is reasonable, there is a larger element who maintain that unless it is prolonged northwards to tap the rich province of Szechuen, the road will never pay, and its upkeep will prove a heavy burden on the Government, who has guaranteed the construction bonds. So, anticipating the completion of the line to Yunnanfu, the French have been preparing public opinion for the necessity of the extension northwards. At the same time China, having learned well her lesson of the last ten years, is planning to checkmate the next move of France.

While the railway just completed has been free from unpleasant diplomatic situations, a deep undercurrent of distrust has been engendered in Chinese official minds through contact with the French railway builders.

The *London and China Express* commenting on this important subject says:

Should the Yunnan Railway be prolonged to Szechuan? Two Frenchmen, who should be in a position to judge, give an emphatic negative to this question. One is M. Robert de Caix, director of the *Bulletin du Comité de l'Asie francaise*, who has just returned from a twelve months' tour in the Far East; and the other is Commander d'Ollone, recently returned from his explorations in Western China. The latter, speaking at a dinner of the French Colonial Union, said that Frenchmen must definitely refuse their help in financing the Chinese in such a project. In the first place, because the Chinese half of the line, Yunnan-Sen-Szechuan, would take its entire traffic from the French half, Yunnan-Sen-Haiphong, China supplying Yunnan with its needs direct; secondly, because it would enable China to put 100,000 men on the French frontier, thus entirely altering Indo-China's conditions of defence; and thirdly, because in the division of Chinese public works among the Powers, France should claim her share in regions offering better financial results.

Mr. Edward J. Dingle, the Singapore journalist who travelled through Yunnan on foot, in a special article to the *Shanghai Mercury*, says "of the situation":

And while things go along peaceably in the province and just over its borders, the Chinese do not forget that the pet ambition of France still is to take Yunnan as French territory; but China is determined that Yunnan is Chinese, and that Chinese it shall remain. French and Chinese punctiliousness and politeness everywhere synchronise, but underlying the Chinese mind there is a distinct antagonism to the Frenchman as compared with the feeling towards an Englishman. None of the French residents of the capital, although they are invited out by the mandarins and made at times a good deal of fuss of, could say that anything approaching mutual friendliness exists. China submits because she must; but will she always? She does not openly dwell upon the past, but it seems to be her only guide for the future. And it seems that China is telling France that unless she will realise the truth, unless she will learn that the profound opposition between the respective civilisations give no more ground why the French should treat the Chinese as barbarians than they them, unless the Chinese are to be treated as a civilised Power and have respect given to their custom and their law, unless France will accord China the treatment she would accord to any European nation and refrain from exacting conditions she would never dream of imposing on a Western Power—unless she will do this, there can be no hope of peace between the two countries.

With this philosophy China is not content. She is making preparations to be in a position to be able successfully to defend Yunnan in time of emergency. Go any day you wish over the roads leading into the capital and you will find string after string of pack horses laden with foreign ammunition and rifles—in a tramp from Chungking to Yunnanfu, a distance of upwards nine hundred miles, I was never out of sight of this new military equipment. And it is all for the specific purpose of keeping the French out of Yunnan.

During the past few months I have had the opportunity of close observation in Yunnan into the international relations of the two countries, and this, backed up by the guarded replies from several Chinese officials in Yunnanfu, has led me to believe that it is as well that France is maintaining an efficient Annamese army over the border, for the time may come—not yet, of course, because China is not yet strong enough—when China will rise in her might and say: "Please go out; we want, and we will have, no more of you."

This is not exaggeration; it is the candid opinion of a French resident in the capital who is in close contact with everything that goes on from a consular point of view. And this may happen, in a decade or two to all foreigners—at any rate French people think that it is not the intention of the Chinese to allow Yunnan to become their Eldorado.

During the construction of the railway the French employees on the railway did much to stir up the strife, n treating the Chinese in a manner more as barbarians han as the excellent labourers they undoubtedly are.

However, it could not be said that the French are not making headway in Yunnanfu; they decidedly are. The hospital is French, the city post office handling most mail matter is French, the single hotel is French, the only foreign emporiums are French; and, as follows, most of the foreign residents are French—the missionaries and the consul general are about the only Britishers in the place. Almost without a single exception all the foreign goods obtainable in the Chinese godowns are French. The French consulate is a palatial building with 120 rooms and spacious grounds; the British consulate is a tumbledown resurrected Chinese house. The French consul-general has with him a vice-consul and an appropriate staff; the British consul-general lives in almost solitary confinement, among none of his own kith and kin. Whatever foreign trade is developed France has secured; Britain is too late, and it seems she can now not do much—there are no British traders there to do it. And with the advent of the railway, if she acts diplomatically France may yet do more and in some measure attain her ends in securing a share of the wealth of the province. But the territory, in my opinion, never."

So it is quite clear that any further extension of French influence in Yunnan will be stubbornly opposed by the Chinese. Under Viceroy Hsi Liang, an elaborate scheme of railways radiating from Yunnanfu was proposed and some preliminary studies and surveys made; and according to the Yunnan correspondent of the *North China Daily News*, all the cities of the province were taxed on the understanding that the revenue was to be devoted to railway construction. The same authority states that none of this money is now on hand for the purpose, intimating that it has gone to fill the pockets of the officials.

However, coincident with the entrance of the French railway into the provincial capital, the arrival of two American railway engineers is also announced. They have since departed to survey a route from Yunnanfu to Szechuen for a line to be constructed with Chinese capital. The proposed route will follow the one already surveyed by the French—up through Hsuenwei, Suifu and on to Chengtu.

A correspondent of the *Shanghai Mercury* writing from Yunnanfu, on August 16th, ulto., describes this French project as follows:

For a very considerable time the route has been surveyed, and from time to time rumours have gained currency that the work would soon be started, but up to the present time nothing has actually been accomplished. More than one expert has given the opinion that it is a matter of absolute impossibility to lay down a line here over the mountains, and see no likelihood of the traffic being catered for in any other way than by means of the horses and mules and the coolie labour now used, and one who knows the country and who has known the arduous toil which travel in this part of the country means would quite agree that only by the spending of an enormous amount of money—which would probably never be repaid—could a railroad be built. The mountains are all laid down the wrong way, so it seems. But there are many huge difficulties presented which only a railroad engineer would understand.

In some places the proposed route takes one over country eight and nine thousand feet above the level of the sea, descending the lowest point to three thousand feet.

Leaving Yunnanfu, the present terminus, 6,400ft. high, the route runs through the important city of Yanglin, thence on to Yilong (8,000ft.), dropping again at Maling-chow to 6,980ft., with a gradual descent to Chu-ching-fu, the centre of an important district, itself on the main road. The line would then leave the main road to Kweichow province, at Chanyi-chow, and thence through very mountainous country, would reach Hsuanwei-chow, undulating between heights of 7,500ft. and 6,000ft. The country around here seems impossible.

From Chu-ching-fu, the route is traced through the valleys and over a range of mountains which runs in a northeasterly direction to Weining-chow, 7,500ft. above the level. This is perhaps the most important city in the route up to Luchow on the Yangtze. It is practically on the borders of Kweichow and Szechwan, in a district of surpassing beauty, in the midst of rolling hills

THE KUANGSI RAILWAYS

The last few months have witnessed a revival of French interest and activity in their dormant claims to preferred railway rights in the provinces bordering on Indo-China.

Article V of the Convention between China and France, signed at Peking the 10th of June 1895, provided as follows:

"It is understood that China, for the exploitation of its mines in the provinces of Yunnan, Kwangsi and Kwangtung, will address itself in the first instance to French commerce and engineers, the exploitation remaining otherwise subject to the rules and edicts by the Imperial Government which affects national industry. It is understood that railways already in existence or projected in Annam can, after mutual agreement and under conditions to be defined, be prolonged on Chinese territory."

Under these provisions and a subsequent exchange of notes in 1897 the right to extend the existing Langson line across the border to Lungchow, but construction operations were suspended at the border. In Mr. P. H. Kent's work on "Railways in China" he refers to the history of French Railway rights in South China as follows:

"At this time the only railway that existed in Tongking was a small 60-centimetre gauge line originally constructed for military purposes in 1886 between Langson and Phulangthuong; no other railways were projected. Ideas, however, existed more or less hazy perhaps, but based on the writings of Francis Garnier, as to the line of country that railways would follow when they came to be constructed and the fact that no definite scheme had been discussed detracted nothing from the value of the rights that had been secured. And here we may conveniently pause and recall the distinction drawn in the chapter introducing the "Battle of Concessions" era, where it was remarked that, like that of Russia, the railway policy of France has been a means to an end: an incident in a larger policy which can only be described as in intention a policy of colonization.

"In the brief sketch in which we have indulged of the expansion of the French Colonial Empire in the south-east corner of Asia lies the proof of the soundness of this conclusion. As Russia descended from the north, so France moved northward, and when it is remembered that four-fifths of the capital required for the construction of the Peking-Hankow Railway was subscribed in Paris, the supposed ambition for a trans-China railroad putting these great allies into direct rail communication was something more than a Russo-phobe chimera. It was a possible danger that has passed away through war, improved understanding, and other circumstances, but in the frenzied period prior to the coup d'état of 1898 it was a scheme to anticipate and, both in Chinese and British interests, to combat.

"To return, however, we now commence the details of the history of railway progress in South China, and in some measure also of that in Tongking, it being impossible entirely to dissociate the two.

"Our starting-point, with the exception of the light military railway between Phulangthuong and Langson in Tongking, is the fifth clause of the Convention of 1895. This clause, as already observed, seems to indicate the existence of a railway policy, but those responsible for its inclusion in the convention were content to regard it for the present as a foundation merely of future schemes. More pressing internal affairs then engrossed the colonial government to the exclusion of a forward policy, and it was therefore left to M. Doumer to devise a policy and to put it into execution.

"M. Doumer was appointed Governor-General of Indo-China in 1897. Energetic and ambitious, he was perhaps the beau-ideal of a colonial governor. Under his auspices an era of progress was rapidly inaugurated, and the adoption of a considerable railway programme was urged upon the French Chamber.

"Leaving France in January 1897, M. Doumer arrived at his post in the following month. Most of the year was spent in familiarising himself with local conditions, and to ascertaining the railway requirements of the country. Towards the close of the year he was ready with a scheme, which was laid before the Conseil Supérieur of Indo-China.

"It is interesting to note that in introducing his scheme, M. Doumer commented in tones of almost noble indignation on what he was pleased to describe as the hardihood of Great Britain in contemplating the penetration of Yunnan and Szechuen by way of Burmah. He took refuge for himself and his auditors, however, in a comforting reflection. 'Pourtant, si nous savons vouloir, nous devons triompher dans cette lutte pacifique. Nous nous trouvons favorisés grace aux facilités que nous donne la vallée du Fleuve Rouge pour atteindre le Yunnan.'

and lakes and fertile vegetation. Around are mountains rising to nine thousand odd feet. From here the country is more or less unsurveyed.

From Weining-chow, there is also a branch line surveyed going off in a northwesterly direction to Chaotong-fu, thence up to Takwan and Laowatan, and down by the river to Suifu, which is of course connected with Luchow by the main river. This would not be the main route, however. This would run via Yuning-hsien (3000 ft.), on through the more populous country on to Luchow, where the Chungking and Yangtze trade would be handled on the river.

Luchow is an enormously rich city on the Upper Yangtze.

Whether this proposed line will ever be laid down or not, I do not believe anyone living can tell. If it once became an accomplished fact the exports from the rich province of Szechwan would go ahead by leaps and bounds As it is the Tonkin-Yunnan line will do much in this direction. Goods for the interior which now go to Shanghai and thence up the Yangtze as far as Ichang by steamer, and thence to Chungking by the risky junk transit through the rapids, will come direct to Haiphong—or perhaps with British goods to Hongkong, tranship for Haiphong, thence by rail to Yunnanfu and overland by pack horse.

From Yunnanfu to Chungking by road is practically a month—about as long as the journey from Ichang to Chungking. So that a great saving of time will be effected as it is, at the same time doing away with the danger of partial or total wreck in the Upper Yangtze.

"M. Doumer's scheme involved the construction of 3,200 kilometers of railway. He thus summarises it:

" 'Ce réseau, qui doit traverser l'Indo-Chine entière, de Saigon au Tonkin, mettant en communication avec les ports de la côte les riches vallées de l'Annam, reliant à la mer par des transversales les grands biefs navigables du Mékong, pénétration en Chine par la vallée du Fleuve Rouge, aura un developpement d'environ trois mille kilomètres.'

"The Conseil Supérieur referred the scheme to a commission on the 14th of September 1898, and as a result of their report the construction of a comprehensive system was authorized for the colony, including a line from Haiphong to Hanoi, to follow the valley of the Red River northwards, and to enter the province of Yunnan.

"M. Doumer's next step was to proceed to Paris in order to obtain the confirmation of the French Chamber. This did not prove a difficult task, the scheme being in due course sanctioned by the law of the 25th December of 1898.

"Meanwhile, shortly after M. Doumer's arrival in Indo-China, steps had been taken to remind the Chinese of their obligations under the Convention of 1895, and an exchange of notes had taken place between the French Minister and the Tsung-li Yamen on the 12th of June 1897. At the same time the right to continue the Phulangthuong-Langson line to Lungchow, some forty miles within the Chinese border, had been recognized.

"On this point being satisfactorily settled, arrangements were made with the Fives-Lilles Company to increase the gauge of the Phulangthuong-Langson- line from sixty centimetres to one metre, and to undertake the construction of the necessary extensions from Phulangthuong southward to Hanoi and northward to the Chinese frontier. This work was accomplished at a cost of 20,000,000 francs.

"Surveys for the extension on Chinese territory were then undertaken, but subsequently, owing to labor difficulties and on commercial grounds, the scheme was for the time being abandoned.

"This event occurred in the autumn of 1898, while M. Doumer's scheme was still under consideration by the commission appointed by the Conseil Supérieur. Earlier in the same year steps had been taken by the French Government to secure further rights in the south of China. The action of Germany, Russia, and Great Britain in the north had afforded the necessary opportunity, and in order to equalize matters, on the 12th of April 1898, China acceded to the following demands on the part of France:

" '1. Kwangchauwan to be leased as a coaling station to France.

" '2. The right to construct a railway to Yunnanfu from the Tongking frontier.

" '3. A promise to be given not to alienate any territory in the three provinces of Kwangtung, Kwangsi, and Yunnan which border on the French frontier—

" '4. The Chinese Government to agree that if ever they constitute a postal department independent of the Maritime Customs, and if a European is to be appointed as Director thereof, France shall have an equal right with that of other Powers to nominate a candidate for the post of Director.'

"The news caused great satisfaction in Paris, but in London some apprehension was felt as to the intended scope of these arrangements. It was pointed out by the China Association that there was no necessity for these guarantees against the non-alienation of territory, and Her Majesty's Government was urged to contest any arrangement that could in any way be 'held to imply exclusive rights of industry or trade, or anything short of equality of opportunity in commercial and industrial enterprise of all kinds.' The matter was allowed to proceed, however, without further protest.

"A few days later a French missionary was murdered in the region of Pakhoi, in consequence of which the French Minister demanded, as a compensation, payment of an indemnity, the construction of a memorial chapel, and the right to construct a railway to join what was referred to as the 'Lungchow-Nanning line' with the sea-coast. As no previous mention had been made of the grant of a concession for a railway between Lungchow and Nanningfu, Lord Salisbury instructed Sir Claude MacDonald to apply for information to the Tsung-li Yamen. The latter on being approached denied having granted any such concession.

"M. Doumer, however, writing as late as 1905, claims that the concession exists, though in justice to the Chinese it should be remarked that further inquiry, while not freeing the matter from doubt, tends to the conclusion that this claim cannot be sustained.

"On the 8th of June the grant of further concessions was announced in Paris. The existence of the right to continue the Langson-Lungchow line being assumed, it was stated that France had obtained the right to construct a railway between Pakhoi on the Gulf of Tongking and Nanningfu in the West River Valley, thus completing 'the network of commercial roads penetrating South China from Tongking and the neighbouring region.'

"But this was at least a very liberal if not a somewhat incorrect interpretation of the understanding that had been arrived at. The fact was that notes had been exchanged with the French Minister to the effect that France would construct this line if any other Power offered to do so, and it was denied that any agreement giving the railway to the French had been signed. Subsequently, in November 1899, the Yamen, reiterating their former denial, gave a solemn assurance to Sir Claude MacDonald that the only concession that had been granted to France in that region was that for a line between Langson and Lungchow, a distance of some 40 miles.

"Since that time no further concessions have been obtained, and therefore at the present time the right to construct this line, and that to Yunnanfu, must be taken to represent the sum total of French railway rights in South China."

With Mr. Kent's clear exposition of the situation before us, one of the most significant phases of recent Chinese railway history is told in the following paragraph from the Shanghai local press under date of January 5th, ulto.

Peking, Jan. 5:—"The French Minister has demanded of the Waiwupu, that the concession promised some time ago to a French Company for the building of a railway from Lungchow in Kuangsi, up to which place the railway runs from Hanoi, to Nanningfu be given to the said French Company. The gentry of Kuangsi have lately protested against the building of this railway by France, as they intend to build it themselves. The Board of Communications had thereupon authorized the Governor of Kuangsi to let the Chinese Company make the necessary surveys."

The Board of Communications has dispatched the Engineer of the Peking-Hankow Railway, Hsi Chi-ping, with a party of surveyors, to Kuangsi, to map out the road for the benefit of the local officials and gentry who propose to build the line. The indications are that China will strain every political and financial resource to build these lines herself rather than concede the demand of the French Minister.

It will be remembered that early in 1906 it was reported that the Central Government at the request of H. E. Chang Ming-chi, the Governor of Kwangsi Province, ordered the Board of Finance to draw the amount of one million taels from the government treasury for the expenses of the newly organized Kwangsi Railway Company line, because the amount was produced by the sale of substantial official rank in Kwangsi.

After being informed of this matter, it is asserted the Wai-wu-pu sent a long telegraphic despatch to the Governor of Kwangsi explaining that there was some misunderstanding among the natives of Kwangsi concerning this railway enterprise. The concession for building the Pakhoi-Nanning Railway was granted to the French Government at the demand of M. A. Gerard, the French Minister in Peking in 1899, by the Tsungli Yamen. The Chinese Government agreed to build that line with Chinese and French capital. According to the terms of the agreement between the Chinese Government and the French Minister concerning the Lungchou Railway any extension beyond Lungchou should also be constructed by a joint Stock Company formed by Franco-Chinese capital.

The French Minister demanded permission to start this enterprise in 1904.

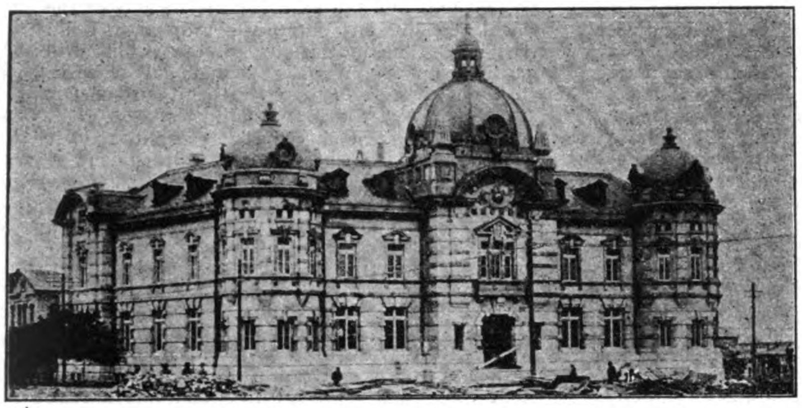
The fact that France has at this late date revived her claims and demanded the concession to Nanningfu, is somewhat disquieting in view of the solemn assurance given to Sir Claude Macdonald by the Tsung-li Yamen—that the only concession granted to France was for a line between Langsen and Lungchou, a distance of some 40 miles.

A few years ago, the news of such a demand from France would have aroused bitter criticism from the British press, and their Legation at Peking would have solicited some further assurance from the Chinese government that the request be refused. But so far apparently this new item has failed to stir British public opinion.

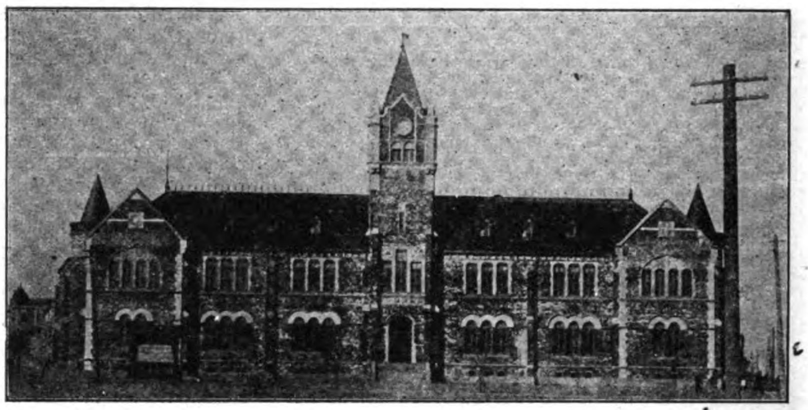
The silence of great Britain is all the more marked, as British capitalists have already invaded the province seeking concessions and contracts. The correspondent of the *North China Daily News* at Kweilin, the provincial capital of Kuangsi, under date of Oct. 29th ulto., writes:

"There are at present in the city four Europeans, representatives of Messrs. Pauling & Co., who have just returned from making a survey of the road between Kweilin and Tsuenchow on the Northern frontier of the province, with a view to a railway between these two places. Whether this survey will lead to anything definite or not, is not yet certain, for although no difficulty was met with on the road in the way of family cemeteries, etc., as has been the case so often in other parts of China, yet the financial support so far given to the project has been so poor, that it is doubtful whether the line, if it depended on this alone, would materialize for some time to come. The gentry in the South are very desirous that a line should be run connecting Nanning, Pose, Wuchow, and Pakhoi, and so are not willing to subscribe to a venture from which they could not hope for personal advantages. The principal raison d'être of the Kwei-Tsuen line would be of course to connect the capital with the Yueh-Han Railway. This would require, however, the financial co-operation of the Hunanese, which they are not willing to give, as the advantages to be gained would be greater for Kuangsi than for Hunan. Yet the affair is judged to be of great importance by both the Central and Provincial Governments and now that a projected foreign loan has fallen through, we learn that the money may be raised by the joint efforts of the Provincial Treasury, the Ministry of Communications and the Military Board. As the province was exempted from subscription to the Boxer indemnity, there is in reserve between two and two and a half million taels, which may be devoted to this object and this amount would probably cover half the cost of the line."

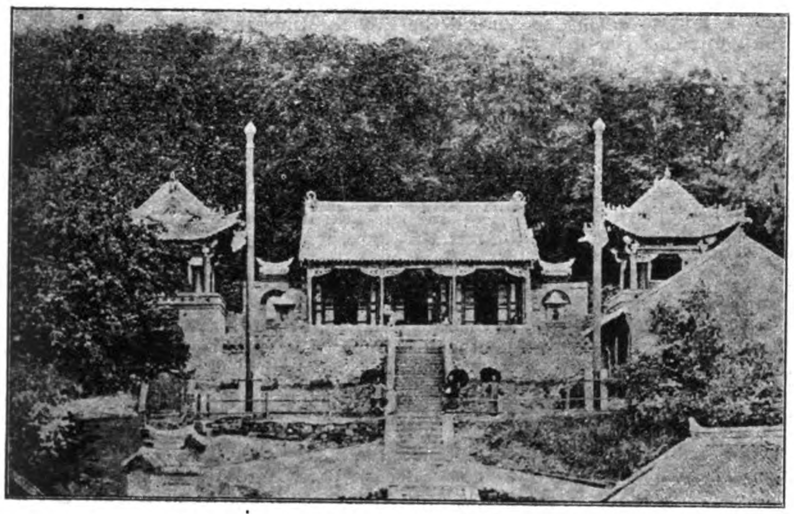
It is apparent that any scheme of railways for Kuangsi must include not only a connection for the provincial capital at Kweilin with the Canton-Hankow line, on the north, but also an outlet to the south along the Kwei Kiang to Wuchow. Both British and French include Wuchow in their rather hazy "spheres of influence" in South China, and the fact that British interests have taken the initiative in invading the territory, may explain the demand of the French Minister for a share in its development, by the Nanning concession.



THE NEW EDIFICE OF THE YOKOHAMA SPECIE BANK



THE CIVIL ADMINISTRATION BUILDING, DAIREN



KIRIN: THE GOVERNOR'S SUMMER YAMEN

MAIN STREET OF TIEHLING, A GREAT BEAN AND GRAIN CENTER

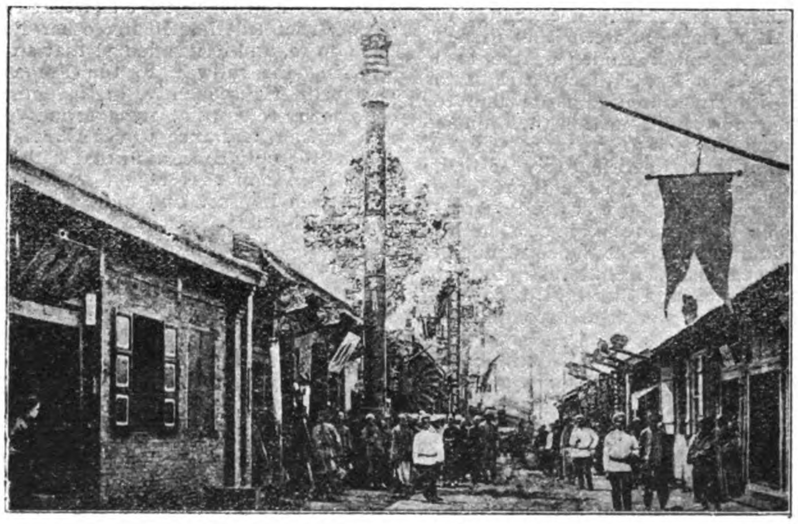
(Continued from page 461.)

THE SOYA BEAN AS A FOOD PRODUCT

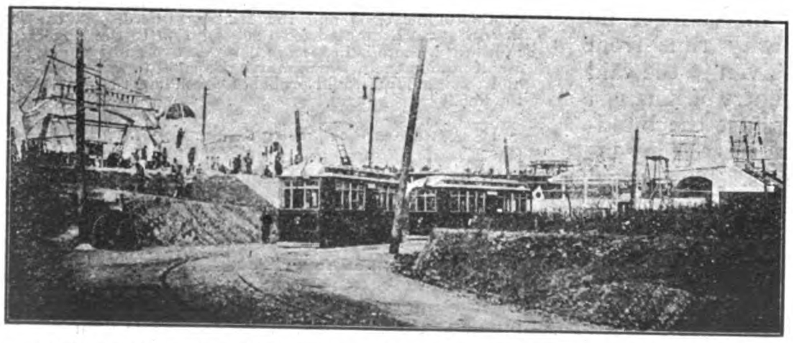
The British Vice-Consul at Dairen, Mr. E. L. S. Gordon, in his report on the trade of that port for 1908, gives a word of advice to those who may be desirous of engaging in the bean trade at Dairen.

' Most of the beans sent down to Dairen come from the districts north of Mukden, Changchun being the principal market. People will only incur losses if they merely have an office in this port and buy beans in the local market; it will be essential for them to travel in the interior and visit the country markets to make economical purchases.

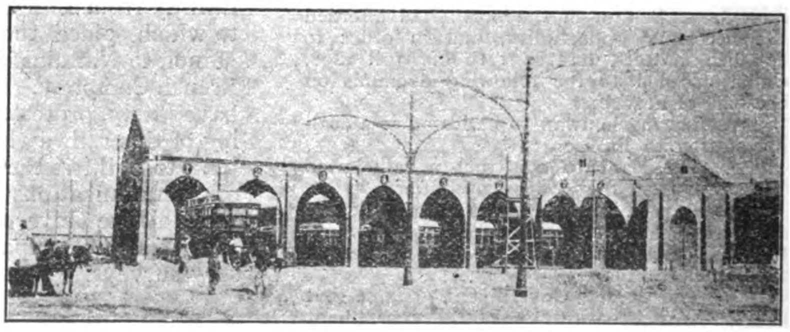
The manufacture of bean cake and the extraction of oil from beans has long been undertaken in Manchuria. By the present method, using hand presses, the amount of oil extracted from the beans is about 8 per cent. At one mill in Dairen, which is fitted with hydraulic presses, nearly 10 per cent. can be obtained. The quantity of oil in the soya bean is from 16 to 17 per cent., and by improved processes it should be possible to extract practically the whole of this, and still make from the fragments as good a quality of bean cake for fertilizing purposes as is made now.



THE STREETS OF NEWCHWANG



THE "WHITE CITY," TERMINUS OF THE TRAMWAY SYSTEM, DAIREN



ELECTRIC CAR HOUSE, DAIREN

In 1907 there were at Dairen two large Japanese mills for the manufacture of bean cake, in one of which steam is used as the motive power, while in the other electricity has been adopted, and a few Chinese mills where the old native method has been retained. During 1908 some 17 Chinese factories have been added, and more are in contemplation. The increase is likely to continue, though possibly not to the same extent, for economic reasons. A better price can be obtained for bean cakes made at Dairen than for those brought down from the interior, as the latter are apt to get damaged in the course of transportation; the demand for bean cake as manure in other countries is steadily increasing.

The manufacture of soap from bean oil has been tried with good results. The soap is easily soluble in hard water. A cake made in the laboratory at Dairen weighs nearly 2½ ozs. troy, and the cost of manufacture, including wrapping and scenting, is said to be not more than ½d. per cake, or 2½d. per lb.

As a matter of fact analysis of the soya bean gives from 17.5 to 19 per cent of oil. The Chinese, with their crude crushing and pressing operations, only secure an average of 6.5 to 7 per cent in oil, leaving over half the oil in the cake. This is what makes the cake itself so valuable, as the high percentage of oil left in the cake makes it profitable to again treat the cake with modern machinery and extract the remaining oil, and its food value is higher for cattle. With modern hydraulic presses, compressing the crushed beans into a thin cake, it is possible to extract 14 per cent of oil. This process, however, cannot be successfully followed, as the Chinese and Japanese market demand the thicker cake to which they have become accustomed. Any departure from "olo custom" by making the cake of different size or thickness, is sufficient to destroy its marketable value as fertilizer. So, while the hydraulic process can obtain 14 per cent, by proper handling the exigencies of the cake market compel the manufacture of the thick cake, with a resultant oil extraction of about 11.5 to 12 per cent.

A new oil extraction process by purely chemical action has been perfected by the firm of Rose, Downs & Thompson, Ltd., one of the oldest oil machinery firms in the world. This bids fair to overturn existing methods, through the higher extraction of oil. The beans are first crushed fine, and steamed, then mixed with petrol spirit, or benzine. As oil is soluble in benzine, every particle is taken up and dissolved and carried away with the benzine. Steam is then applied and the benzine is evaporated and carried through pipes to a cooling tank, where it is condensed and employed again. The oil is left clear from impurities. The extraction by this method averages 17 to 18 per cent leaving less than 1 per cent in the meal. This meal is sold as fodder and has a high nutritive value. An enterprising firm of British manufacturers are now making biscuits from the soya bean meal obtained through the chemical extraction. This new process opens up immense possibilities for China, and provides a new and cheap food product for the people. If by the application of the chemical process, the highest oil extraction is obtained, and the resultant meal is suitable for human consumption, in the form of biscuit, its economic value is greatly enhanced. The prohibition of cereal exports by the Chinese government in Manchuria is due largely to a desire to save the grain for home consumption and prevent famines. A few thousand taels appropriated by the Chinese officials to erect a factory along these lines and conduct further experiments might result in untold advantages for the country.

The Newchwang correspondent of the *North China Daily News*, under date of February 14th, ulto., states the situation as follows:

"The distress in this port is—amongst the poorer classes, and these number four-fifths of the people—very acute; the same applies, and the reports are true, to up-country towns. Manchuria, a land of plenty, has, this winter, thousands who are barely half fed, whilst a few rich speculators, native and foreign, are growing very rich.

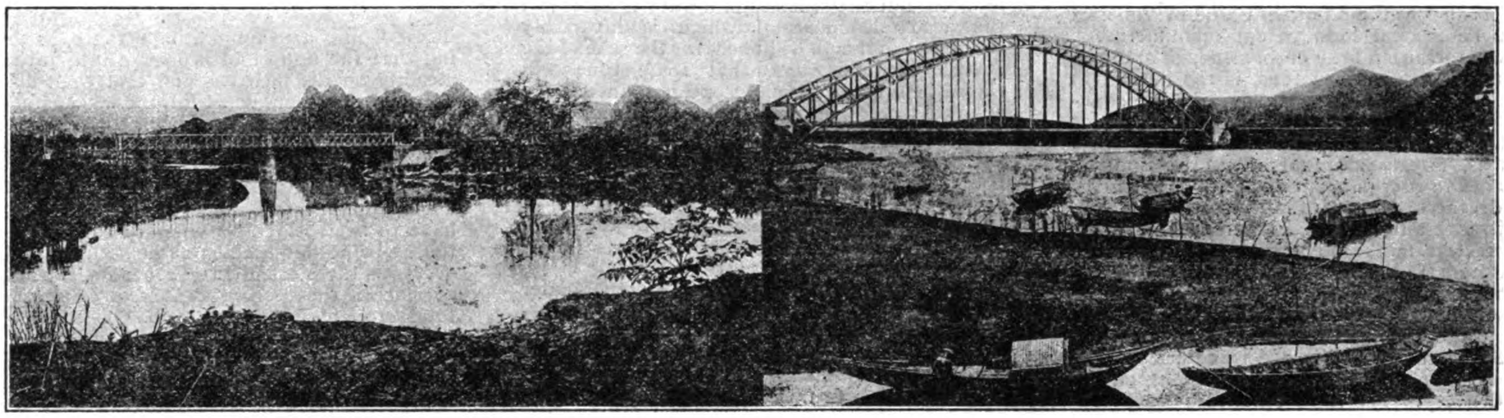
"Hatred towards the authorities in general, and towards certain foreigners in paticular, is growing intensely, and unless the Government steps in and controls the price of millet, at the least, there may be serious trouble. It is all very well to let the beans go out of the country freely, but other cereals, on which the very life of the masses depends, should, as in the past, be under some control. The writer knows, for a fact, that whole families are existing on the scantiest rations, simply because the bread-winner was unable, during the working season, to earn more than a bare pittance, and could not save enough to buy the simplest needs of his family, at more than double the normal prices, such as are now ruling. At the end of last summer and in the early autumn, a few big hongs, native and foreign, arranged for heavy contracts of grain and caused a tremendous boom for export. These huge contracts are being forced through with all the pertinacity of modern Shylocks, regardless of all consequences to the suffering masses, who, unless protected by a wise paternal Government, are quite helpless. It may be argued that the laws of supply and demand will balance things, and that the country, in the end, will gain, but this is a question not so easily settled off-hand, and calls for wisdom in the rulers. In the meantime, let it be noted, and noted well, that a fierce fire is burning in the hearts of tens of thousands of half-starving human beings, who cannot see or understand why they should suffer so cruelly, in order, as they firmly believe, to allow a few rich men to increase their wealth."

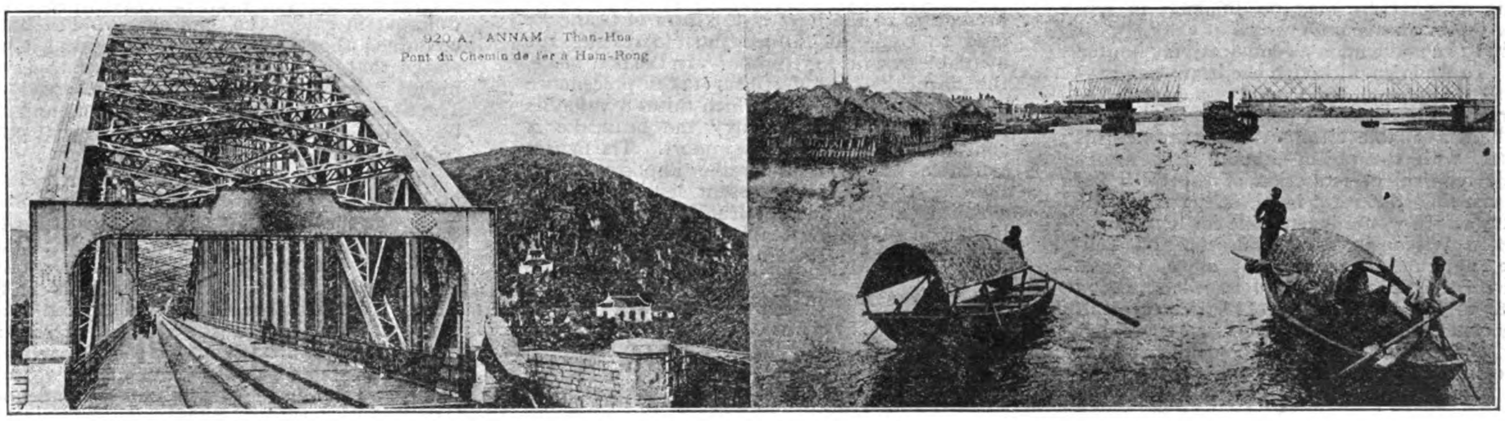
A wise government would look deeply into the food value of the soya bean, and provide funds to erect the first factory, and open up a new and unlimited food supply for its starving millions.

A new field is opened to the profitable employment of capital, and it is to be hoped that some enterprising firms will take the matter up.

OIL AND CAKE MANUFACTURE.—THE SOYA OIL BEAN

In a recent issue of the "Economist" attention was drawn to the Soya bean trade in Manchuria, and to the rapid rise of the country as an exporter. The Soya bean is becoming an important world article, and probably few products of the soil are attracting more attention at the present moment both here and abroad. In fact, so great is the attraction that the English manufacturers are beginning to fear undesirable





competition for supplies, as America and the Continent are casting envious eyes upon what amounts almost to a monopoly of the trade held by Great Britain at this moment as a consequence of the existing prohibitive import duties on oilseeds in the protected countries. During the past season the English oilseed crushers settled down to a highly lucrative trade and for some months past many of the large mills have set their entire plant running on the crushing of Soya beans, to the exclusion of cottonseed, linseed, and other oleaginous seeds. The supposed shortage of the cotton and flax crops in the United States, and the anticipated shortage of linseed in the Argentine, with the resultant scarcity of cottonseed and linseed products, has found the English market comparatively unperturbed, for the reason that Soya oil and cake can supply most of the requirements as well, if not better, whilst the foreigner is debarred from its use by the presence of high import tariffs. This new industry supplies a good example of the value to the United Kingdom of free imports of raw material compared with the protective duties in other countries. The removal or reduction of the duty on the Soya bean on the Continent and in America would be a great blow to our manufacturers, as the Manchurian bean crop, although amounting to over one million tons, is too limited to allow of a large trade with many of those countries which would only be too pleased, under equal conditions, to import the commodity. As it is, Soya oil manufactured in England continues to rise, in sympathy with the scarcity and dearness of linseed and cottonseed oils, and it is interesting to note that one of the main factors in the advance has been the demand from the United States, which is being supplied by the English crushers. Large quantities of Soya oil are being shipped from British ports to the American seaboard, and the demand is likely to continue; but the trade has already been so large that it is difficult to buy oil for near delivery. The same oil is also being shipped from Japan and China to the United States, as well as to the North of Europe, and here we have—for the moment at least—the only serious competitors of English crushers. These two Eastern countries, in which the enhanced value of bean products is leading to the introduction of improved European manufacturing systems, are making great strides in the oil crushing industry, and will naturally import increased quantities of beans from Manchuria in proportion to the success which they achieve in the export of the oil.

The new season has now commenced in earnest, and from December to April and May as many as fifty steamers have been chartered to load beans at Dalny and Vladivostock for British ports, representing something like 300,000 tons of raw material, or about £2,000,000 sterling value. During the whole of last season the sales to Great Britain amounted to 400,000 tons, so that in the month of December, with twelve months to run, we have contracted for a quantity only 100,000 tons short of the total English trade during 1909. While it is being estimated that Great Britain will require in 1910 double the quantity imported in 1909, the news comes that Japan and China will also want increased quantities next year. The crop barely covered the demands of East and West during the past season, so there is probably some justification for the fear that during the coming season there may be difficulty in supplying the extra demands which already appear certain to be made upon a comparatively limited crop. In America, although the beans have not yet been imported for the reason given, the Government has been at considerable pains to collect all available information regarding this product, with the object—should negotiations for the removal or reduction of the tariff fail—of planting the seed in those parts of the country which would be suitable for its cultivation. In Wisconsin, Massachusetts, and Tennessee, agricultural experiment stations have taken up the Soya bean, and issued extensive reports to the Department of Agriculture, all highly laudatory of the beans as compared with other animal feeding stuffs, such as cottonseed cake and meal, linseed cake and maize, which are the principal feeding stuffs of the United States. In England, the bean cake is of even greater importance than the oil, representing as it does about 90 per cent. of the raw material. The cake is the residue after crushing, and the analysis compares favourably in oil and albuminous substances with the best decorticated cotton-seed cake and meal, large quantities of which have been imported into this country for many years for cattle feeding. Owing to the low prices of imported beans, bean cake can be bought to-day at £6 12*s* 6*d*. per ton in London, whilst cottonseed cake imported from America is as dear as £7 10*s*. to £7 12*s*. 6*d*. In Denmark, a great butter-producing country, some hesitation was shown in regard to the introduction of the Soya bean, as it was feared that the taste of the butter might be affected by feeding cows with Soya cake, but experiments have proved the reverse, and Denmark has secured 25,000 to 30,000 tons of beans for shipment from Manchuria during the next few months for crushing and cake-making. In France and Germany the tariffs are sufficiently high to shut out the article. Powerful interests are nevertheless at work in both countries to have the duty removed or reduced, but the removal of a duty is an object the accomplishment of which is invariably difficult, and it is to be hoped, for the sake of the British manufacturers, that some time will elapse before the large European countries are enabled to receive direct shipments from Manchuria free of duty, which would only increase competition for supplies of raw material and result in a limitation of our export of bean products, both cake and oil.

The bean industry, though old to the East, is new to Europe, so much so that little is known as yet about the Eastern trade, which is responsible for the consumption of the greater part of the Manchurian crop. Reliable information on this head is eminently useful, not to say indispensable, to the British importer, as without knowledge of the local industry it is impossible to follow intelligently the trend of values, which are chiefly dependent upon the demand from China and Japan. In Manchuria the trade is mainly in the hands of the Chinese and Japanese. Bean crushing has been carried on for many years, principally by primitive methods; that is to say, the beans are pressed in circular hand presses in the native factories, of which there are a considerable number in Manchuria, many of them small and ill-equipped, whilst a few are of modern design, and employ steam and electricity as motive power. A portion of the oil is thus extracted, but the cake made is generally an unwieldy product, varying in thickness from three to six inches, contains a great deal of moisture, and is unsuitable for a long voyage, owing to its liability to become heated and unsound. This cake is used chiefly as a fertilizer in Japan and Southern China. During the present season these two countries imported about 600,000 tons of beancake from Manchuria for fertilizing. In this connexion the following questions have been asked, the answers to which are of importance to the British importer:—(1) In the event of bean prices in the United Kingdom reaching high levels, will Japan and China be able to pay enhanced values, and continue to import beancake as a fertilizer? (2) For the same reason will Japan eventually come to rely on phosphates or other artificial manures? (3) If prices continue high in the United Kingdom, will a large quantity of the beans which at present go to the East in the form of beancake tend to come to Europe, thus increasing the available surplus for Europe? In the first place, the beancake as a fertilizer takes precedence of phosphates in Japan, which raises a valuable rice crop. In that country the beancake is considered an indispensable import. The figures available are of considerable importance, as showing that, on the present level of prices, which is a high one for England, there is no likelihood of the East abstaining from competition with Great Britain for supplies of beans. The rates of silver are given first, with prices of beancake free in godown in Japan in yen per 46 piculs:—

	1902	1903	1904	1905	1906	1907	1908
Silver......	23½	27 1/16	26¾	28 7/16	31⅛	30⅛	24
Beancake...	1.10	1.14	1.61	1.42	1.52	1.73	1.05

142 Average.

At the time of writing the price of beancake is 1.10. In 1908 beancake was cheaper than at any other time during the years under comparison, whilst the average price of the seven years was 1.42. The present price of 1.10 is, therefore, under the average, although the value of beans in England is now between £7 and £7 5*s*. per ton, according to position, an advance of over 15*s*. per ton over the average of last year, whilst before the introduction of beans into England prices in Manchuria have been as high as the equivalent of £9 per ton in London. It will, therefore, be seen from the foregoing figures that, whilst the British c.i.f. price is considered dear, in the East fertilizing beancake is comparatively cheap. At the same time, it must be remembered, in comparing present values in the United Kingdom, that freights are this season nearly 10*s*. per ton dearer than a year ago, whilst all charges in connexion with the shipment of beans and beancake to Japan and China are exceedingly small. The imports of beancake into Japan during the last five years have been:

1905	1906	1907	1908	1909
182,000	258,000	320,000	460,000	600,000

These figures are of equal importance, as showing that the import of beancake into Japan is steadily on the increase, and that even during the present season, when Europe was competing for beans, Japan took as much as 600,000 tons of cake, or more than three times as much as in 1905. If the increase in the Japanese imports of cake continues in the same ratio as during the last five years, the future crops will have to be considerably enlarged to provide for the growing requirements of both East and West, as there seems little room for expansion, considering the foregoing details, on an estimated total crop of little over 1,000,000 tons. But there are many reasons why we should see increased crops in the near future, as it is clear that in the past the cultivation of the bean in Manchuria was neglected, firstly, because of the limited market—Japan and Southern China being the only consumers—and secondly, because of the absence of railway services in many districts capable of profitably cultivating the bean. Conditions are rapidly becoming more satisfactory to the native, and fresh producing centres are being opened to trade by the construction of lines connecting with the main routes to Dalny and Vladivostock. On the whole, it may be confidently anticipated that the cultivation of beans in Manchuria will go on increasing in proportion to the impetus given to trade by broader markets and the provision of adequate railway communication in the interior.

An exhibition of Soya beans and by-products from North China, together with photographs of the Soya bean industry, was held at the boardroom of the Manchester Chamber of Commerce on 17th and 18th inst. Explanations and full particulars of the industry were given by Mr. Cavendish Evelyn Liardet, lately returned from China.

At a recent meeting of the Committee of the African Trade Section of the Incorporated Chamber of Commerce of Liverpool, Mr. A. Grenville Turner delivered an interesting address on the cultivation and uses of the Soya Bean.

In the course of his address Mr. Turner said that it was estimated that this year's crop of Soya beans is likely to exceed 1,000,000 tons. There were about 20 to 25 varieties of the beans, different in color, size, and shape. The beans contained about 18 per cent. of oil, and it was stated that refined Soya oil fetches to-day a higher price even than refined cottonseed oil. The Soya been, which is an edible bean and can be used in the same manner as marrowfat peas, can be utilized for a number of purposes.

In America an attempt has recently been made there by certain dealers to place the Soya beans on the market as a new substitute for coffee, and sell it under other names at fancy prices. A sample of coffee specially ground from the Soya bean, at the suggestion of Sir Alfred Jones, was submitted, and created much interest. Mr. Turner stated that, according to a recent report issued by the Department of Agriculture of the U. S. A., as Soya beans contain no starch, they have been recommended

for food for people suffering from diabetes. Soya bean cake is used as manure on the sugar plantations of Southern China, and on the rush beds, from which Chinese matting is made. Mr. Turner also stated that the Japanese extract casein from the bean from which they make a milk, which is condensed. Cheese is also made from this milk.

The last number of the *Bulletin* of the Imperial Institute contains some particulars of the uses of the oil extracted from Soya beans:

The oil is chiefly used in this country for the manufacture of soap, and is very well suited for this purpose. It is quoted in the London market at £21 5*s*. per ton (September, 1909), with crude cotton-seed oil at £23 to £23 5*s*. per ton. The oil-cake left after the expression of the oil is hard and heavy, and resembles linseed cake, but is lighter in color, and has a characteristic taste recalling that of peas. The nutritive value of this product is approximately equal to that of decorticated cotton-seed cake. Feeding trial with this cake in comparison with decorticated cotton cake have been carried out at the Cumberland and Westmoreland Farm School at Newton Rigg., and also at the Royal Agricultural College, Cirencester. At the former institution it was found that the cows, when fed with Soya bean cake, gave rather more milk than when fed with cotton cake; but the difference was so small that it may be considered that the two cakes are equal in this respect. The proportion of fat in the milk was the same in each case. The butter produced from the milk of the cows fed with Soya bean cake was quickly obtained on churning, but was softer, and of a paler color and somewhat inferior flavor to that from the milk produced by the cows fed with cotton cake. In view of the importance of the trade in Soya beans, it has been considered desirable that attempts should be made to grow the product in other countries than China. The Imperial Institute has already brought the matter to the notice of the Governments of several British Dependencies, and experiments are now in progress in the Cape of Good Hope, Natal, the East Africa Protectorate, and the Gambia. An effort is also being made to stimulate the cultivation of the Soya bean in India. It is stated that considerable additional areas are available for cultivation in Manchuria.

The annual report of the Hull Chamber of Commerce and Shipping states that the Seed Crushers' Committee report that "the mills have been fairly well employed, and for the first time in the history of the trade soya beans have been crushed in quantity." The Hull Seed, Oil, and Cake Association report that "the outstanding feature of the year has been the advent of the soya bean from Manchuria, which marks an epoch in the crushing trade of the United Kingdom. About 400,000 tons have been shipped to the United Kingdom in 1909, of which 153,000 tons have arrived in Hull since March last. There is reason to hope that the soya bean will be a regular article of import."

(*L. and C. Express, November*, 1909.)

THE TARIFF QUESTION.

The soya bean trade has been the subject of some interesting correspondence in the Glasgow Herald. Challenging the view that Free Trade has given a virtual monopoly of the importation, Mr. W. H. Raeburn wrote that he understood that the duty on soya beans in Germany had been repealed, and that the Germans were now inquiring for steamers from Manchuria. He added, "Germany imports the seed direct from India, Russia, and the Platte, etc., and protects her seed crushers by a tariff on imports of linseed cake and oil. The effect of this has been literally to shut up her markets against us. Can anyone doubt for a moment that that will be her policy with this new trade? If we may judge by order experiences, not only will Germany supply her own markets, but her surplus will be dumped on ours, and used to compete with us in those countries to which we are presently exporting.... As to the carrying of beans, British tonnage has no preference; it is a matter of open competition. At the same time I rejoice to say that this new trade has been a wonderful help to shipowners, and has been a factor to some extent in turning the tide of depression in the freight market."

To this Mr. James Begg replied that he could not discover that the duty on soya beans in Germany has been withdrawn. He observes that Mr Raeburn does not suggest that France or the United States have withdrawn their duty, and proceeds:—"Mr. Raeburn does not attempt to deny what my letter claimed, viz., that owing to our Free Trade policy and the Protective policy of our competitors we benefited, first, by getting our beans and bean products at the lowest possible prices; second, by the labour employed and the profit obtained in handling and crushing the beans; third, by the labor employed and the profit obtained in the manufacture of the goods which China takes in exchange for the beans; fourth, by the commodities received from America and Germany in exchange in the bean product. The fifth benefit claimed—viz., the employment and profit given to shipping, mostly British, in transporting the beans and goods inward and outward —he frankly admits.... When a country with 'scientific tariff system' takes off a duty, is that a reason why we should put one on?"

A Dairen firm has recently shipped experimentally to America 500 tons of Indian Maize of Manchuria which is acknowledged to be much superior in quality to the American product. It is expected that this trial shipment will give rise eventually to large numbers of orders from the United States.

GOODS STORED AT DAIREN.

(Jan. 16, 1909.)

Beans	88,121	tons.
Bean Cake	17,778	,,
Wheat	1,070	,,
Red Beans	1,767	,,
Kaoliang	1,086	,,
Indian Maize	949	,,
Sesamum	488	,,
Other cereals	991	,,
Oils	349	,,
Sundries	1,647	,,
Total	113,897	tons.

ARRIVALS AT DAIREN.

(Jan. 16, 1910.)

Beans	37,688	bags.
Bean Cake	15,174	cakes.
Wheat	1,580	cakes.
Red Beans	2,374	bags.
Other Cereals	819	bags.
Kaoliang	568	bags.
Sesamum	1,014	bags.
Bean Oil	30	baskets.
Sundries	325	bags.

SOYA BEAN ANALYSIS.

The following is the table of analysis made in England:

	WATER.	OIL.	ALBUMEN.	SUGAR.	FIBRE.	MINERAL.
S. Manchurian Bean	9.23	18.31	24.39	23.97	5.67	6.13
N. Manchurian Bean	12.80	17.37	24.36	20.30	4.80	5.98
Hankow Bean	12.85	17.80	37.50	23.18	4.47	4.70
Linseed Cake	10.20	8.60	30.78	33.20	7.17	10.45
Cotton-seed	10.75	23.37	22.39	17.57	4.55	3.45

From the above table it will be seen that Hankow Bean is better suited for food but less profitable for oil making purposes than South Manchurian species. Compared with the cotton seed, the bean in general contains less oil but more albumen and its grounds can be more advantageously used for cattle-feed.

EXPORT THROUGH VLADIVOSTOCK.

Mr. R. M. Hodgson, Vice-Consul at Vladivostock, makes the following suggestions to shipowners as to the terms of charterparties taken up for the export of beans from Vladivostock:—

"There is every prospect of the bean trade in North Manchuria developing into a complicated and highly speculative business. The industry has created interest in many quarters, with the result that the number of buyers is increasing. American firms have recently entered the market. German firms, in view of the repeal of the duty on beans in Germany, will undoubtedly buy largely; while a well-known Japanese firm, by far the largest operators till now, are believed to be preparing for export on an even greater scale than hitherto. The tendency promises to be for the Chinese merchants to get the business into their own hands, buying from the local producers and selling again to the European firms. At present the practice is for the agents of these last to go into the country and buy with Chinese measurements and money. The business is a very difficult one, and several firms engaging in the business for the first time have bought their experience dearly.

"Shipowners would be well advised, if possible, to change in one point the terms of the charterparties of vessels taken up for the export of beans from Vladivostock. At the most only six berths are available for loading, and it has often happened during the past season that nine or ten steamers chartered for this trade have been lying in the port together. As the charterparty has in nearly every case hitherto provided for lay-days to commence only on the ship getting into berth at the option of the charterer, it has resulted that ships have frequently had to lie idle for three or four weeks at the owner's expense. It would seem advisable for owners, where possible, to insert a clause in future charter-parties making lay-days to start from a fixed date."

HALF YEARLY GENERAL MEETING OF THE HONGKONG AND SHANGHAI BANKING CORPORATION

The Eighty-ninth Ordinary Half-Yearly General Meeting of the Shareholders of the Hongkong & Shanghai Banking Corporation was held on the 19th instant, in the City Hall, when the eighty-ninth Report of the Court of Directors was submitted. Hon. Mr. W. J. Gresson, (Chairman), presided and there were present: Messrs. H. E. Tomkins, G. Balloch, J. W. Bandow, E. G. Barrett, C. S. Gubbay, C. R. Lenzmann, F. Lieb, E. Shellim, R. Shewan, H. A. Siebs, J. R. M. Smith (Chief Manager), Hon. Mr. E. A. Hewett, Messrs. John Barton, J. W. C. Bonnar, Chun Tong, J. F. Cox-Edwards, H. L. Dennys, W. Dunbar, Ho Fook, J. Johnstone, Lau Pun Chiu, Lo Cheung Shiu, J. M. E. Machado, F. Maitland, G. H. Medhurst, A. H. Ough, W. H. Purcell, T. I. Rose, A. B. Rouse, A. Findlay Smith, N. J. Stabb, W. H. Wickham and Wong Leung Him. The Chief Manager read the notice convening the meeting.

The Chairman, having read the Report already published, said:—Gentlemen, at our last meeting I remarked that the ease prevailing in the various money markets made it difficult for us to find full and profitable employment for our funds, and as similar conditions have existed more or less during the past six months, it is with no little satisfaction that your directors are able to lay before you the report which I have just read.

In addition to the usual dividend of £2 per share, we are again able to recommend a bonus, of 5/- per share besides adding $250,000 to our Silver Reserve Fund, which, with the $750,000 apportioned to that Fund last June, makes an increase of $10 lacs for the year 1909. This leaves a balance of $2,028,987.94 to be carried forward, being slightly in excess of the amount brought in from the previous half year. I hope this distribution of profits will meet with your approval.

It is very generally admitted that the past year was not particularly favourable to banking business, especially for a Bank like ours. In times of restricted trade, and curtailment of credit, our deposits increase and yet we must keep our funds in liquid form, ready to meet any revival in exports and imports, the finance of which constitutes the most important part of our business. Your directors have much pleasure in acknowledging that the excellent results attained are due to our capable Staff, whose work shows that they have the Bank's interests at heart, and I am sure you will approve of our having voted them a bonus of 10 per cent. on their salaries. (Applause.)

Turning now to the future, I am glad to say there appears to be better ground than ever for believing that a general improvement in trade prospects has set in. India shows a marked recovery; although the total volume of trade in that country during the past year is not greatly in excess of 1908, it has witnessed a return to more normal conditions as regards the balance of exports over imports, the surplus for 1909 being some £38 millions, against £11,-600,000 the previous year, not far short of 1907 when exports exceeded imports by a little over £43 millions. The increased export figures are due to the happy combination of good crops, and high prices, in several of the principal articles of export. In particular I may mention the big export of wheat last season, and the present cotton crop, which is a record in quantity and seems likely to find a receptive and highly remunerative market. The effect of such excellent harvests must mean prosperity to the people, and can hardly fail to bring about a revival in trade, and a return of confidence, which will gradually provide employment for the recent almost unparalleled accumulation of Capital in the chief monetary centres of India.

From the Straits Settlements and Federated Malay States reports are very satisfactory. The high price of rubber has given a great impetus to the development of land for its cultivation. The export of this product, although still considered in its infancy, already figures prominently in the trade returns, and it is confidently anticipated that, in the course of time, the export of rubber from that region will become no insignificant factor in the world's supply. Tin also has benefited from an advance in price, and a year, which opened under somewhat gloomy conditions for the Straits Settlements, has proved to be one of considerable prosperity, with even better prospects ahead. The importance of the tin industry, combined with the vast possibilities of rubber, appeared to call for increased Banking accommodation in the Malay Peninsula, and in deference to the repeated wishes of our friends and constituents, as well as to fortify our position in the Straits Settlements, it was decided to open Sub-Agencies at Malacca and Kuala Lumpur, as mentioned in the Report.

We hear from Saigon, and Bangkok, that rice in Cochin China, and Siam, promises to be full average crops, and as the welfare of the population in those countries is largely dependent on the rice harvest, I hope that the present favorable outlook will be realized, so that we may reasonably anticipate active trade at those important shipping ports, in whose prosperity shipping interests in this part of the world are so intimately concerned.

As regards the Philippines, I am pleased to say that our advices point to brighter prospects opening up for these Islands. The rice crop of 1908-9 was disappointing, but the export of hemp was the highest on record, and the Payne Tariff Bill has proved beneficial to sugar and tobacco, and is calculated to give a stimulus to the cultivation of these commodities. The introduction of more capital seems to be the chief thing required to bring about greater prosperity and in the United States of America they have immense resources to draw upon, as soon as Capitalists realize that there is safe and profitable employment for their money in the Philippines.

Japan, like other countries, has also been passing through a state of depression as regards the import trade, which shows a considerable falling off during the past year. This was largely due to a lack of confidence, and a consequent disinclination on the part of Japanese Banks to finance enterprises so freely as formerly, but this restriction of credit has had the desirable effect of bringing about a much healthier condition of affairs. Crops generally have been excellent, the rice and raw silk figures will both show a record, but unfortunately they have not met very good markets. Rice, I understand, owing to low prices, has been stored by the farmers, and raw silk has also been handicapped by reduced prices in Europe, and a poor demand in America; consequently the circulation of money resulting from abundant harvests has not yet been generally felt over the country. The value of exports, however, will show a considerable increase over the previous year, and, as money is very easy in the country, it seems only fair to assume that conditions are such as to assist trade and encourage business, as soon as there is a return of confidence and a legitimate demand springs up for goods to replenish stocks, which at present are said to be depleted far below the average of recent years.

Coming nearer home, there seems no doubt that Hongkong and the Southern Ports in China are at last recovering from the long period of depression, which dates back from 1905; one of the most promising signs, so far as Hongkong is concerned, being a gradual improvement in the inquiry for property, which would hardly take place unless it was generally felt that we were entering upon a period of greater prosperity. Chinese merchants have done better than for some years past, and business generally is showing signs of greater activity, more especially in imports. The average price of Bar Silver for the year, is, I believe, the lowest yet recorded, but notwithstanding this, the fluctuations have been confined within narrow limits, compared with what we have been accustomed to see in recent years, the highest price being 24¼*d.* and the lowest 23 1-16*d.* while for a considerable period the metal remained practically stationary, in the neighborhood of the year's average of 23 11-16*d.* per oz. As a consequence, rates of exchange, both here and in Shanghai, ruled fairly steady, at a level which has proved beneficial to the development of the export trade. This is particularly noticeable in the exports from the Yangtsze, which are greatly increasing, not only in quantity but also in variety, and in the direct shipments of beans from Manchuria to Europe, a new and important feature in the foreign trade of China.

Stocks of piece goods in Shanghai are assuming more normal proportions, and although prices are still out of touch with home markets, they are gradually improving, and indications point to a revival in this important branch of trade. As you will see from the Report, a Sub-Agency to Shanghai Branch has been opened at Hongkew. I am sure it will prove a great convenience to our numerous constituents in that district, and it will also relieve the pressure in some departments in the main Branch Office. It may likewise be taken as evidence that your Directors appreciate the importance of extending banking facilities, as the growth of big centres, where we are established, may call for.

News from North China is also distinctly encouraging. There is said to be a wonderful change in the condition of the people in many Provinces, signs of growing prosperity are well in evidence, and cultivators are gradually extending their spheres, encouraged by the railways opening up new districts and providing better and quicker means of transport than hitherto obtainable. It looks as if the people of China already realize the tremendous advantages to be gained from an extended railway system, and, if this is so, it means the beginning of an impetus to a more forward policy in this direction. It requires no stretch of the imagination to see the benefits to be derived from the carrying out of such a policy.

The subject of Railways is such an engrossing topic to all connected with affairs in China, and has led to so much publicity in the press of late, that doubtless some reference to the question will be expected by you.

During the past year, this Bank has taken a leading part in protracted negotiations with the Imperial Chinese Government, for the financing and construction of an important railway system in the upper basin of the Yangtsze. An arrangement satisfactory to the Imperial Chinese Government, and fulfilling all necessary conditions of security, and equal distribution of material benefits among the international groups interested, was arrived at last June. But, at this juncture, the revival of claims in another quarter necessitated a re-arrangement of terms, and a political character was thereupon imparted to the negotiations which has unfortunately retarded their completion.

The delay in the construction of two railway lines of inestimable importance to China, and to the trade of all nations, which has thereby resulted, is much to be regretted. The days of political spheres of influence in China, upon which many illusory hopes were at one time based, seem past. They have been succeeded by aspirations for equal opportunities to be enjoyed by all, in the development of her vast resources—aspirations which, it is to be hoped, will in time be realized.

The vitality of the Chinese people, their growing spirit of patriotism and their many solid characteristics, are at once a safeguard against the resumption of the policy of spheres of influence, and a guarantee of future progress along national lines. That progress may not keep pace with Western impatience, or be effected in strict accordance with Western ideas, but we must leave China to work out her own problem in her own way, feeling sure that their solution will not be accelerated by vexatious or hostile criticism.

In the meantime, the Imperial Maritime Customs collection for the last twelve months exceeds the record of all previous years but one, the material condition of the people has improved, and Chinese credit in Europe was never higher. The wealth of the country is, in fact, increasing before our eyes. To take one instance alone, the recent phenomenal growth of the Manchurian bean trade, furnishes a striking illustration of the development of a hitherto unrealized resource, and the analogy may confidently be extended to industries in other parts of the Empire, as the process of development continues.

It seems hardly to be contested that the capitalists who are likely to share most largely in the fruits of this development, are those who, free from suspicion of political motives, are prepared to meet the needs of China in the simplest, fairest and most practical way.

I do not think I need detain you longer by making a detailed comparison of the figures in the balance sheet; with our big business, its wide ramifications, and different currencies, we must expect considerable fluctuation in the totals under the various headings. Speaking generally, the figures show an improvement over those of last June, though not quite up to the ones of a year ago, which were the highest on record. Looking back over a period of some years, you will find that our business has been stead ly growing, and, with the encouraging trade prospects to which I have alluded, I think you may confidently look forward to a continuance of its growth. (Applause.)

Before moving the adoption of the report and accounts I shall be pleased to answer any questions you may wish to ask.

There being no questions, the chairman moved the adoption of the report and accounts as presented.

Mr. H. L. Dennys:—Gentlemen, we all know the cheery optimism of after-dinner speakers when the blood has been induced to circulate a little quicker than usual, owing, perhaps partly, to the rapid circulation of the excellent wine provided; but the very long and carefully considered statement that has just been made by our Chairman cannot be classed with the cheery speeches delivered on convivial occasions. It is a sober statement of facts showing, not only that there is good ground for hope of an improvement in the future, but that a general improvement in practically all branches of trade from India to Manchuria has undoubtedly set in within the last twelve months.

The political horizon is, I regret to say, at present by no means clear and doubtless this accounts a good deal for the slowness of the recovery; but those to whom, like myself, the Far East has been the near East, for very many years, cannot fail to believe in the future prosperity of an institution which has done so well in the past and which is in such able hands.

Our Chinese fellow-citizens in Hongkong have, I am told by them, had a very successful year and the fact that there is a distinct improvement in the property market locally makes me confident that when the railway to Canton is opened and the new University established the Colony will once more forge ahead and Hongkong Companies, about which I regret to say there has been a good deal of pessimism lately, will again pay dividends sufficient to attract local investors. (Applause.)

I am sure, gentlemen, that you will agree with me that the bonus to the staff is thoroughly well deserved and I trust that when we meet again six months hence the political fever, which at present appears to be retarding the full recovery to health of business throughout the world, will have completely abated and that the Bank will be able to take full advantage of its marvellous position as the leading European financial institution dealing with the vast population of China and we shall then reap the benefit of the 45 years of good solid work that has been devoted to it.

With these very few remarks I beg to second the passing of the report and accounts. (Applause.)

The motion, on being put to the meeting, was carried unanimously.

Mr. A. B. Rouse proposed that the election of Mr. G. Balloch and Mr. F. Lieb as Directors be confirmed and that Mr. C. R. Lenzmann, Mr. H. E. Tomkins and Mr. C. S. Gubbay be re-elected Directors.

Mr. J. Johnstone seconded and the motion was agreed to.

On the motion of Mr. A. Findlay Smith, seconded by Mr. W. H. Wickham, Mr. W. Hutton Potts and Mr. J. W. C. Bonnar were re-elected Auditors.

The Chairman:—That is all the business, Gentlemen, thank you for your attendance. Dividend Warrants will be ready on Monday.

REPORT OF THE BUA MINING COMPANY, LTD.

The report of the directors of this company show a net profit of ₱12,920 for the year ended December 31st, 1909. The operations of the company have been confined to the development of the Gomok claim and only low grade ore averaging $7.26 gold has been milled, the percentage of values extracted being about 90. This would indicate a very promising future to the company as this value is estimated to be the lowest to be found in any of the group of claims under its control. The report refers to a loss of ₱10,000 as the result of the serious baguio that visited the Benguet region last October. Besides the Gomok, the company controls 17 claims, but it is its purpose to direct all its efforts to further development of the Gomok as there is every indication that the ore values will increase as the work progresses. In addition to the present equipment of six stamps, it is the purpose of the company to double that capacity this year at an outlay of ₱60,000. The old plant will be moved to new site above flood level and the additional six stamps added. After this the work of developing the other claims will be taken up. In all during the year, the mill was in operation for nine and one-half months during which time 4,509 tons of ore were milled with a recovery of 1,232.86 ounces by amalgamation and 234.15 pounds cyanide recovery making in all a value of ₱64,714.89.

Manager Shea makes the following report on the mining operations:

"MINING. Operations have been confined to the Gomok mine, no funds being available for work on any other of the Company's claims.

"The South reef drift has been driven 128 feet during the year and 26 sets of timbers put in place. A crosscut 62 feet in length has been driven, connecting the North and South reefs, and furnishing a thorough circulation of air. The extent of the stoping done on this reef for the year is 350 feet in length and 22 feet in height.

"On North reef thirty feet in height has been stoped, making present extent of stoping on this reef 350 feet in length and 90 feet in height. No drifting.

"A crosscut tunnel is being driven to cut both reefs at a perpendicular depth of 100 feet below the main level, and the North reef was cut at 515 feet from the crosscut entrance, showing 2½ feet of solid reef, which goes to prove that the reefs improve with depth, as in the main level above the point of intersection the reef was small and broken up. The crosscut is being continued to cut the South reef, and, when that is done, upraises will be put through to the main level, and drifting on both reefs will be prosecuted, in order to open up stopes with a view to supplying a mill of greater capacity than the one at present in operation."

The following is the balance sheet and of profit and loss account:

ASSETS.		LIABILITIES.		
Mining Property	₱270,605.86	Capital, 3,500 Shares at ₱100	₱350,000.00	
Machinery, Plant, Buildings, Furniture	74,847.54	Less unissued capital	186,660.00	
Camote Mine	4,717.93	Actual Cash Capital subscribed and paid for to 31st December, 1909	163,340.00	
Sundry Debtors	3,320.89	1,500 Shares to be issued to original holders of claims when patents are perfected	150,000.00	₱313,340.00
Cash Balance	1,507.00	Sundry Creditors		28,738.84
		Profit and Loss account		12,920.38
	₱354,999.22			₱354,999.22

DR.	PROFIT AND LOSS %	CR.	
Mining Labor	₱18,938.40	Net result of 1,232.86 ozs. of gold sold	₱36,943.54
Supervision	4,800.00	Net result of 234 15-16 lbs. cyanide product sold	27,731.35
Sundry Charges	2,175.66	Various profits	225.69
Supplies	13,802.31		
Bua Mess %	437.86		
Depreciation on Machinery	8,316.39		
Flood Damage	3,549.58		
Balance c/f	12,920.38		
	₱64,940.58		₱64,940.58

The result of the year's workings is most satisfactory to the shareholders in view of the fact that the operations were confined to low grade ore and under conditions not the most favorable. With the proposed increase of facilities and the development of the richer deposits, the maximum return on investment may be expected. The policy of the company has been most conservative devoting most of its effort to development work and carefully investigating volume and values before expanding.

CONTRACTING NEWS

BUREAU OF SUPPLY, PHILIPPINES.—5,000 meters of railway track, including 1429 pieces, each seven meters long, gauge 750 m.m.; 2900 fish plates; 5,800 bolts; 4,170 ties corrugated steel; 16,680 clips; 16,680 bolts and five turn-outs.—Contract awarded H. R. Cooper & Co. representing Arthur Koppel Co., price ₱8,695.32. The other bidders were: Messrs. Smith & Ziegler, ₱10,399.07; Fred Wilson & Co., ₱11,619.54; Moll Kunzli & Co., ₱10,500; Germann & Co., ₱10,356.

PHILIPPINE BUREAU OF PUBLIC WORKS — Construction of High School, Nueva Caceres, Camarines.—The following bids were submited: Delmar W. Smith, ₱59,740.00, 300 days; John Gordon, ₱61,736 55, 270 days; E. E. Calvin, ₱57,300.00, 250 working days; S. C. Choy, ₱58,500.00, 300 days; W. W. Coleman, ₱48,240.00, 180 days; F. D. Hayden, ₱58,000.00, 300 days.

BIDS OPENED.—Manila Hotel Company.—Manila Construction Company, ₱539,390 exclusive of driving piles, 420 calendar days; also driving 1700 to 2200 piles at ₱5.40 a piles, 90 days; Messrs. J. G. White Company to supply all labor and materials at cost, plus 8%; Delmar Smith to supply labor and materials at cost plus 7%; Atlantic, Gulf & Pacific Company bid for driving piles at ₱6 per pile completed in 75 days; Germann & Co. to supply electric and telephone system, elevators, meters, pumps and fixtures, ₱58,850.00 and for lighting, including fans ₱7,250; S. J Rand & Co., plumbing and drainage system, ₱54,998.98, kitchen equipment ₱15,548.56; Smith & Blossom, plumbing and drainage system, ₱62,880.00, kitchen equipment complete, ₱16,228.26.

PROPOSALS FOR FURNITURE.—Chief Quartermaster, Manila.—2800 pieces of furniture.—Open April 2nd, 1910.

PROPOSALS INVITED.—Frozen fresh beef and mutton.—Headquarters Philippines Division, Office Chief Commissary, Manila, P. I., January 3, 1910.—Sealed proposals, in triplicate, subject to usual conditions, will be received at this office until 11 o'clock a. m., April 5, 1910, at which time and place they will be opened in the presence of attending bidders, for furnishing and delivering about six million six hundred thousand (6,600,000) pounds of frozen fresh beef and two hundred thousand (200,000) pounds of frozen fresh mutton to the Subsistence Department, U. S Army, at Manila, P. I., during year ending June 30, 1911. The contractor will be required to pay all customs dutie. The United States reserves the right to decrease the amount advertised for, upon reasonable notice to the contractor, or to increase the amount with his consent. Each proposal must be accompanied with a bidder's guaranty in the amount of $20,000 or with certified check for that sum on a

EXAMINATIONS AND REPORTS FOR FINANCING

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BRICKWORKS MANAGER—An expert Brickworks Manager, at present holding position as Manager of Large Brick, Tile, and Pipe works in the East, will shortly be disengaged on the expiration of a large contract at present in hand, and will then be prepared to consider offers for a similar appointment with some firm of standing or to advise upon and draw up full working plans of plant and works for the manufacture of Brick, Tiles, Terra cotta, Earthenware, Glazed goods and all kinds of Cremonic work.

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Far Eastern Review

13 NANKING ROAD

FAR EASTERN RAILWAYS

HEHLENGKIANG RAILWAY PROJECT.—The wheat district lying in this province is to be tapped by a light railway between Hailun and Suihwa, a distance of 240 li. The capital is being subscribed by the Chinese merchants and the prospect is bright for the early commencement of work.

TESTING PHILIPPINE HARDWOODS FOR RAILWAY TIES.—The Bureau of Forestry has concluded arrangements with the Philippine Railway Company for a test of the more important woods for sleepers. The company will lay an experimental mile of track in Panay with molave, ipil, yacal, tindalo, dungon, and a few others so that data as to durability may be secured. The different sections will be carefully watched and the changes in the several woods noted from time to time.

BEACON HILL TUNNEL.—The last brick was laid in this important construction in February.

THE SOUTH MANCHURIA RAILWAY DEBENTURES.—For the purpose of increasing the rolling stock, extending the workshops and harbor at Dairen, the floating of 40,000,000 yen debentures was authorized at a recent meeting of the directors. During this meeting President Nakamura stated that in the near future the railway must be prepared to handle at least 4,000,000 tons in one direction.

YOKOHAMA-HACHIOJI RAILWAY.—Negotiations have been concluded with the Railway Board whereby the latter guarantees interest at 3.5% per annum on the cost of construction after April 1 and the charter is to run 20 years. The cost of construction includes paid up capital of 2,900,000 yen and a loan of yen 690,000.

SIAMESE SOUTHERN RAILWAY.—A large consignment of steel rails were received from Belgium last month at Bangkok and Trang while the construction at Singoro and Trang is being carried on by a force of several thousand coolies. At Petchaburi 35 kilometers of earthwork is reported complete and bridge work is underway.

PAKNAM RAILWAY COMPANY, LTD.—The report of this company for the half-year ended December 31st shows gross earnings to the amount of Ticals 78,661.17 and the expenditure Ticals 36,293.72, leaving a net revenue of Ticals 42,100.67. The shareholders received 10% for the half year and, added to 12% for the previous term, made 22% for the year besides paying bonuses and other fees. Of the traffic receipts Ticals 63,767 were received from passenger traffic and Ticals 9,852.62 from freight.

FIFTY YEARS OF INDIAN RAILWAYS.—A White Paper issued by the Government, covering the last fifty years of railway development, states that in 1858 300 miles of road were opened and 2,000,000 passengers and 253,000 tons of freight were carried in that fiscal year. On the first of April, 1909, there were 30,983 miles of open line which carried during the year 330,000,000 passengers and 64,000,000 tons of freight. The average rate per mile for passengers was .416 cents gold and about less than one cent gold per ton per mile for freight. There are now employed about 525,000 persons in railway work, and of this number 508,000 are Indians.

REPORT OF CHINESE BOARD OF COMMUNICATIONS.—The annual report submitted by the Board contains the information that there are 8,000 li or 2,700 miles of railway lines open in the Empire and about 60,000 li or 20,000 miles of telegraph lines in operation.

INDIAN RAILWAY SUPPLIES.—According to *Railways* the North British Locomotive Company, Limited, Glasgow, have the contract of the Burma Railways Company for the supply of four Mallet locomotive engines with tenders together with one set of spare wheels and axles. The Cargo Flat Iron Company, Limited, have, we hear, a large order in hand for the supply of bull-headed steel rails and also flat-footed steel rails, of different sections, to the East Indian Railway. Messrs. Dorman, Long and Company, Limited, Middlesborough, also have a large contract from this Railway for the supply of bull-headed steel rails and steel fishplates and flat-footed steel rails with steel fishplates. Messrs. Beyer, Peacock and Company, Limited, Manchester, and the North British Locomotive Company, Limited, are supplying spare or duplicate parts for Metre Gauge Rack Locomotives to the South Indian Railway for use on the Nilgiri Mountain Railway. Messrs. Burn and Company, Limited, have the order of the East Indian Railway for the supply of the iron and steel work for 20 built-up columns, joist beams, complete, girders, and bulb T. bar rafters for the second floor of the south flank of the south block of these buildings. The Patent Shaft and Axletree Company, Limited, are supplying four locomotive engine turntables to the Bengal-Nagpur Railway. Messrs. Stothert and Pitt, Limited, Victoria Street, London, S.W., who have their workshops at Bath, have in hand the manufacture of a steam travelling crane for the same Railway. Messrs. Elliott's Metal Company, Limited, have, we hear, supplied a large number of brass boiler tubes for locomotives to the Bengal-Nagpur Railway. Messrs. J. Levick, Limited, have in hand a very large order for the supply of their well-known carriage fittings to the same Railway. Messrs. Burn and Company, Limited, are supplying the Oudh and Rohilkhad Railway with three Engine Hoists complete with winch overhead pulley and sheave blocks; and are erecting for the Eastern Bengal State and East Indian Railway Companies a waiting-shed each, the former at Diamond Harbour and latter at Serampore station. For Burma, they are supplying 120 iron shutters for the Mon Canal Works; two barges each 60 feet by 20 feet by 5 feet for the Public Works Department, Rangoon; a pontoon swing bridge, and Jetty for Bassein and ironwork for another jetty at Rangoon. In addition to the above, they are supplying steelwork for a suspension bridge at Ootacamund; a dozen corrugated iron roofs for buildings in Calcutta and elsewhere and a large quantity of columns, baseplates, etc., for a local jute mill. The Railway Board have sanctioned the transmission by the South Indian Railway of an indent to England for bridge girders required for renewals on the Salem-Calicut section and Pedanar-Mettupulaiyam branch.

FORMOSAN RAILWAY NEWS.—Consul Reat of Tamsui reports that the net profit of the Formosan Railway for a little over a year's operation amounted to $653,695 gold and the following statistics are offered by the railway department: Total mileage 271.3; value of rolling stock, $1,319,670, consisting of 54 engines, of which eight are American made, 112 carriages and 826 wagons. Revenue: Passengers, $615,119; freight, $755,867; miscellaneous receipts, $4,424; total revenue, $1,375,410. Expenditures, $721,715; excess of revenue, $653,695. The number of passengers carried during the year was 2,691,033, and the freight carried amounted to 710,460 tons. Persons employed on the line, 2,756; salaries and wages paid during the year, $281,840. Two extensions of 60 and 41 miles respectively have been proposed in the Eastern and Southern parts of the islands.

TIENTSIN-PUKOW RAILWAY.—There is prospect according to the native press that the Northern Division of this line will be completed to the Whangho by the end of the present year. Up to the Chinese New Year 150 miles were reported complete connecting Tientsin and Techow.

RUSSIA-JAPAN THROUGH TRAFFIC AGREEMENT.—The following statement has been given out by the Imperial Railway Board of Japan:

"As regards the International Through Passenger Traffic, Japan will open it shortly with Russia and in the natural course of events which will not take long to wait for, also with Germany, France and England. Needless to say that this will bring a boon to the travelling public at large.

"But what is of far greater importance would be the establishment of a system of Through Goods Traffic. On a glance at foreign trade returns of Japan, the fact will stand out conspicuously that, next to the United States and China, England stands highest in the volume of trade and is followed in order by Germany, France, Russia and others. The future of Russia-Japan commerce is indeed assuming a brighter aspect, but the absence of facilities for Through Goods Traffic has so far confined the international trade within the bounds of Eastern Siberia only. For communication with European Russia, the roundabout way via France or England has had to be adopted, which route takes 40-50 days for goods to cover, whilst the shortest cut via the Siberian Railway would give a saving of 35-30 days each way, that is to say, would require only 14-15 days."

PHILIPPINE RAILWAY FOUNDRY.—This company has established a foundry at their headquarters, Iloilo, and on the day of the opening this month turned out three tons of castings. The plant has a capacity of five tons a day.

THE KIANGSU RAILWAY.—A report from Hankow is to the effect that a general meeting of the shareholders was held recently and it was decided to invest Tls. 580,000 and to raise a domestic loan of Tls. 2,000,000 to carry the construction to completion.

TIEHLING-HAILUNCHEN PROJECT.—The Chinese Chamber of Commerce at Tiehling has approached Peking through the offices of the Viceroy with a view to receiving imperial sanction to the construction of a line connecting these two points and practically parallel with the Kilin-Chanchun line. It is understood that Peking has dispatched an engineer to make an investigation and report on the feasibility of the project.

JOHORE RAILWAY DAMAGED.—Over 60 miles of this line suffered severe damage from the heavy floods that visited that section during February and traffic was practically suspended. In some places the entire embankment was washed away and entire reconstruction made necessary in some sections. The cost of repairing the line which is about 120 miles in length has not been definitely estimated but will take months to accomplish.

CANTON-HANKOW EQUIPMENT.—Consul Pontius of Swatow gives the following on the equipment of this line:

"With regard to the rolling stock, six American locomotives are already in operation and

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bank of approved standing in Manila. The bidder to whom the contract is awarded will be required to give bond. Blanks and full information furnished on application to this office or to the nearest United States consul. Envelopes containing proposals must be marked: "Proposals for frozen fresh beef and mutton for fiscal year 1911, to be opened April 5, 1910," and addressed to the undersigned.—D. L. BRAINARD, Lieut. Col., D. C. G., U. S. Army, Chief Commissary.

PROPOSALS INVITED.—Bangkok Sanitary Department.—5,445 tons of cast-iron water pipes and accessories opened April 15, 1910.

PROPOSALS FOR COAL.—Headquarters Philippines Division, Office of Chief Quartermaster, Manila, December 13th, 1909. Sealed proposals, in triplicate, subject to usual conditions for furnishing approximately 65,000 tons of coal to the Quartermaster Department, U. S. Army, during the Fiscal Year 1911, will be received here until 10:00 a. m. May 16th, 1910, and then opened. Information and blank forms furnished on application. F. G. Hodgson, Deputy Quartermaster General, U. S. A., Chief Quartermaster.

16 are in stock. They are six Moguls of 102 tons, the cylinders of which are 19 by 26 inches, the coal capacity 9 tons, and the water 5,000 gallons. There are four Manhattan locomotives being used in construction work; these engines were formerly in service on the elevated railways in New York City. There are also six double-tender tank engines of 50 tons, which are engaged in running the freight and passenger trains to railhead.

"The Mogul engines have just appeared on the road, and they will certainly inspire the Chinese of the interior when they go out for duty. The foreign engineer in charge and his men are proud of the fact that they have got these big engines together in 11 days from the unpacking of the first case.

"Of coaches and freight cars there are 30 American-type passenger coaches, one directors' car, 72 American freight cars, and 106 China-made freight cars. At the works at Wongsha three first-class compartment coaches are now being built, as well as three second-class coaches, and four third-class coaches, the steel underframes having been set out from America.

"In the future much of the superstructure of cars will be built by the Chinese themselves, and a change is to be made with regard to bridge construction. Whereas the practice has been to import the bridge from England or America all ready for erection, future bridges will be made from material imported in the rough. The mechanical department at the head station at Wongsha, which is exceedingly well equipped, the latest machines having been imported from Great Britain and America, is capable of turning out all manner of work. At present the machines are in temporary sheds, but permanent shops will shortly be erected."

KIRIN RAILWAY PROTEST.—The Chinese gentry recently held responsible for the anti-Japanese boycott in Manchuria have filed a protest against the joint construction and control of the Kirin-Chinn-tao Railway by Japan and China under the recent agreement. It is believed, however, that the differences will be amicably adjusted.

BAGUIO SPECIAL SERVICE.—The Manila Railway Company has arranged a special service to Baguio on Tuesdays, Thursdays and Saturdays, the trip to Camp One being made in 7 hours and 20 minutes. The round trip to Baguio good for six months including automobile service is ₱30.90 for the season.

ANTUNG-MUKDEN RAILWAY CONSTRUCTION.—The latest advices from this important construction are to the effect that great difficulty is experienced in boring the Funchinling tunnel 4,880 feet long, the longest on the line. At about 370 feet from either end the hardest kind of rock was encountered and the progress has been slow. However, the contractors believe they will finish the work at least five months previous to the date of the contract. About 200 men are employed on this particular work.

THE SHANTUNG RAILWAY.—The service on this railway is constantly being improved and there has been a marked response in increased traffic. Last year the rolling stock was increased by two locomotives, several baggage cars, twenty coal cars and ten covered freight cars besides a few tank cars. Tsingtau and Tsinanfu have had the benefit of a fast train daily since last October. Among the improvements along the line is the building of a number of good hotels which has greatly encouraged passenger traffic.

OBITUARY

The death of Mr. Kinneth D. Tweedle of the engineering staff of Messrs. Jardine, Matheson & Co. was reported from Peking the latter part of last month. The deceased was prominent in engineering circles. Since 1905 until about six months ago, he was assistant locomotive superintendent of the Shanghai-Nanking Railway when he accepted a position with Messrs. Jardine, Matheson & Co. at Peking.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, POWER, LIGHT, TELEGRAPH, TELEPHONES, AIRSHIPS, ETC.

NIKKO ELECTRIC RAILWAY.—Some difficulty is reported in connection with the construction of the railway connecting Nikko and the Ashio mines, which is expected completed by the end of April. This line was proposed for the purpose of securing the passenger traffic from the Ashio Copper Mines and the Refining Works of Kiyotaki. Heretofore the traffic in passenger and freight was carried by jinrikshas and bull-carts and these interests are engaged in a campaign to force the railway to abandon the construction.

THE PAOSHAN TELEPHONE EXTENSION.—Peking has made objection to the extension by the Shanghai Mutual Telephone Company of its lines into the Chinese district, without, it is claimed, securing the permission of the Chinese authorities.

SHANGHAI-HANGCHOW TELEGRAPHS.—Permission has been granted by the Peking Government for the installation of a direct telegraph line connecting these two points. Heretofore, messages were sent via Swatow.

THE KINUGAWA HYDRO-ELECTRIC PROJECT.—A report from London is to the effect that capital to the extent of yen 20,000,000 has been interested upon the representations of Mr. Jackson. The capitalists will now send representatives to investigate the venture and if the result is satisfactory the development of this plant is practically assured.

WIRELESS FOR THE PHILIPPINES.—A committee comprising representatives, each from the military service, naval service and Insular Government, will soon meet to conclude arrangements for the installation of a complete wireless service throughout the Philippine Islands.

ALL RED WIRELESS.—The recommendations of the British wireless conference with regard to installations connecting up her possessions in the Southern Pacific and Australasia would entail an expenditure of approximately £75,000 and a yearly outlay of £25,000. This would include high power stations at Sydney, Doubtless Bay, Suava in Fiji and Ocean Island, with medium power stations at Tulagi, Solomon Islands, and at Vila, New Hebrides.

PRIVATE WIRELESS AT MANILA.—W. E. Sherman, stevedore, has arranged for the installation of a wireless plant at his home in Manila which is situated on Santa Mesa heights. His purpose is to keep in touch with the liners carrying wireless apparatus making Manila a port of call.

ELECTRIC OMNIBUSES IN SOURABAYA.—The municipality has begun the installation of an electric lighting and power plant and it is proposed to operate a system of electric omnibuses from overhead wires.

WIRELESS IN SIAM.—The representatives of the United Wireless Telegraph Company of New York have been negotiating with the Siamese Government with a view to installing ten stations there. The Marconi Company is also interested. The United Wireless offered to make the installation for Ticals 80,000.

ELECTRIC LIGHT PLANT FOR CHANGCHUN.—Consul Cloud of Mukden has reported that an American Company is negotiating for a concession to instal an electric plant at this point to cost approximately Tls. 125,000.

SEARCHLIGHT INSTALLATION AT CORREGIDOR.—An appropriation of $139,200 gold has been asked for to pay the cost of installation of ten large searchlights on the fortifications at the entrance to Manila Bay and Subig. Of these lights the largest will be about 60 inches.

SIAMESE AND TELEGRAPH WIRE.—The disposition of the Siamese natives in outlying districts to utilize pieces cut from the telegraph wires for repairing bullock carts, plows, etc., makes the service very irregular, says the *Siam Press.*

CHINESE POST AND TELEGRAPH SCHOOLS.—The Peking Government has decided to open schools at an early date for the training of operators under Chinese management.

PUBLIC WORKS, DOCKS, WHARVES, ETC.

WHANGPOO CONSERVANCY REPORT.—The statements of receipts and expenditures submitted to the Shanghai General Chamber of Commerce show that up to December 31st, 1909, the total expended amounted to Tls. 4,416,337.10. Besides this amount the Conservancy Board is pledged for the following amounts:

	Sh. Taels.
(1) Unpaid balance of old dredging contract	875,000.00
(2) Unpaid balance of the Fort Jetty contract	529,416.00
(3) Amount of the recently signed dredging contract	264,000.00
(4) Principal of 4½ million loan	4,500,000.00
(5) Balance of interest on the 4½ million loan	3,274,409.74

TANJONG PAGAR WHARVES.—The first portion of the reconstructed wharves formerly known as the Borneo Wharf has been opened. It will be known as the West Wharf.

SOME JAPANESE PUBLIC WORKS.—The following projects were considered by the diet in connection with budget:

	Yen
The car-ferry at Shimonoseki (1910 to 1915)	12,000,000
The Kobe breakwater (1910 to 1914)	2,870,000
The Kure torpedo experimental station (transfer) (1910 to 1911)	214,300
Big gun range at Kopho (1910 to 1911)	280,385
Works in Chinhai Bay (1910 to 1919)	8,135,159
Contrivances for cooling powder chambers on board ship (1910 to 1911)	3,500,000
Raising of the *Matsushima* (1910 to 1913)	170,000

Besides the above is the expenditure of over yen 8,000,000 in the establishment of a new naval port in Chinghai Bay, Korea, and two military stations one at Port Lazaroff for barracks and a gun range at Kopho. The appropriation is spread over ten years.

CHINESE GOVERNMENT PAPER MILL.—The construction of the Government Paper Mill at Hankow is under way and will be completed at the end of the year. All kinds of paper, including paper for bank notes, will be manufactured here.

CEMENT TESTS
Made according to the latest British Standard Specification, or to any other, as required : : : :
COAL TESTS
Ordinary tests. Caloriphic value. Elementary analysis
MINING INSTITUTE AND ANALYTICAL LABORATORY
Dr. LIVIO SILVA

SHANGHAI MUNICIPAL PUBLIC WORKS ESTIMATES.—The extraordinary expenditure for the current year is estimated at Tls. 592,401 and will include the amounts necessary to construct a bridge over the Yangkingpang between the two bunds, a rifle range, and the site for a second school for Chinese.

PHILIPPINE IRRIGATION.—Over 700 men are employed by the Bureau of Public Works on the irrigation project in Tarlac province involving 6,000 hectares of 13,500 acres of land, covered by main and lateral canals. The sum of ₱300,000 has been appropriated for the work.

BRIDGE BUILDING IN INDIA.—The Eastern Bengal Railway has completed the plans and specifications for the construction of a bridge across the Ganges with a total length of 5,600 feet, comprising 15 spans 360 feet in length with a height of 65 feet above low water. The main trusses will be 32 feet apart from center to center, and each pier will be laid on steel caissons measuring 3 feet by 36 feet. The wells will be sunk 150 feet and a concrete plug placed at the bottom, then filled with sand, and a cap of concrete put on top. The construction will be carried out by the Government.

YOKOHAMA-TOKYO CANAL.—Yokohama financiers are interested in promoting a project for the construction of a canal connecting those two points and advance the argument that it would greatly reduce the cost of transport of freight which had heretofore to go in lighters. The distance is only 16 miles, yet it takes on the average two days to transfer goods to Tokyo under present conditions. The canal will be built along the sea coast if present plans are consummated.

DAIREN WHARVES.—The present daily capacity of the wharves is estimated at about 9,000 tons and it is the purpose of the authorities to increase it by an additional 8,000 tons when the East Quay is finished.

PHILIPPINE ARTESIAN WELLS.—Under the direction of the Bureau of Public Works 150 wells have been drilled throughout the provinces; the Quartermaster's department has drilled 25; and 160 have been sunk by the provincial authorities. The deepest bore made was near the Taal volcano in Batangas where the well was sunk to a depth of 1,046 feet. The result of the use of this water, which is of the purest quality, has been a marked reduction of the mortality in every section where they have been installed.

NEW MANILA BRIDGE.—The Municipal Board has been negotiating for the purchase of the land on either side of the river with a view to constructing a bridge connecting the districts of Sampaloc and Pandacan at an expenditure of approximately ₱50,000. This will greatly expedite traffic between the two sections of the city and shorten the distance to the downtown district from Santa Ana and Pandacan.

WATERWORKS AT CHANGCHUN.—The South Manchuria Railway Company is preparing plans for the installation of a water supply system within the railway zone to cost approximately Yen 400,000.

BANGKOK PUBLIC WORKS.—The Public Works Department has sent an engineer up the Nan River for the purpose of blasting out rocks that obstruct the channel used by passenger boats at the town of Nan. The work will mean a large expenditure, but will greatly facilitate the carrying of freight at reduced cost.

VLADIVOSTOK FORTIFICATIONS.—It is reported that the Vladivostok military authorities have placed an order for 70,000,000 bricks at the rate of $10 gold per meter for the purpose of enlarging the fortifications and construct additional barracks.

SHIPBUILDING, MERCHANT MARINE AND FISHERIES

LIFTING CRANE FOR THE MITSU BISHI DOCKYARDS.—The large crane having a capacity of lifting 180 tons and which cost yen 700,000 has been installed at the Dockyards of this company at Nagasaki. The crane has a height of 270 feet.

STEAM TRAWLER CONSTRUCTION IN JAPAN.—A merchant of Kobe has made application for subsidy in accordance with the deep sea fishing subsidy law in connection with a steam trawler of 300 tons ordered from the Kawasaki Dockyard.

THE CHINA AND MANILA STEAMSHIP CO., LTD.—The annual statement shows a profit on working of $26,971.54 Mex. and after paying interest and other charges, a debit balance of $3,777.33 was carried forward.

THE KOCHIEN TRANSPORTATION AND TOWBOAT COMPANY.—The profit for the year amounted to Tls. 32,745.57 after writing off for depreciation. Out of this a dividend of seven per cent was directed paid and a balance of Tls. 7,055.58 carried forward.

CHINO-BELGIUM STEAMSHIP ENTERPRISE.—The formation of a company with a capital of francs 20,000,000 has been proposed by Belgian and Chinese capitalists for the purpose of inaugurating a service between Antwerp and Shanghai. The matter has been referred to the Board of Posts and Communications.

LIGHTHOUSE NEAR SWATOW.—The erection of a new lighthouse on Chiliang Point near Swatow is underway and another light at Pinghai Bay is proposed for the benefit of the carrying a trade through the Haitan Straits.

SIBERIAN FISHERIES.—The Governors of the Amur and Coast provinces, where there has been unusual development of the fisheries, have made a request on St. Petersburg for a flotilla of torpedo boats to patrol those waters. It is understood that the request will be granted and the flotilla dispatched to Vladivostock in June.

TSINGTAU'S NEW STEAMSHIP CONNECTION.—It is understood that the Hamburg-American line will make Tsingtau a regular port of call instead of the former irregular connections. The P. & O. has made Tsingtau a port of call on the home trip to Europe. This arrangement has been of great benefit to the strawbraid shippers.

PACIFIC MAIL.—The *San Francisco Call* announces that this company proposes to divert several of its steamers to the trade from Puget Sound and that the company is to build two ocean piers on the Oregon and Washington's water front property, as well as accommodation for freight at a cost of $750,000.

THE TENYO MARU SPEED TRIALS.—After eleven months active service this vessel, built by the Mitsubishi Dockyards at Nagasaki, completed six trial runs over measured distances on Feb. 8th, making an average of 20-167 knots and on the following Tuesday making an average of 20.3565.

PACIFIC NAVAL NEWS.—The Cruisers *West Virginia*, *Maryland*, *Pennsylvania* and *Colorado* have been ordered to San Francisco for repairs and alterations, which will represent an expenditure of over a million dollars.

FIRST STEAMER OF C. M. & ST. PAUL LINE.—The *Tacoma Maru*, of the Osaka Shosen Kaisha, arrived at Manila from Tacoma the last of February inaugurating the through four week service from Tacoma of this line of steamers connecting with the Chicago, Milwaukee and St. Paul Railway.

JAPANESE BATTLESHIPS.—The Konochi now in the process of construction at Yokosuka is expected launched next October. Her displacement will be 20,750 tons with a broadside battery of ten twelve inch guns and secondary batteries of six inch. Her speed will be 20 knots.

THE SIAM STEAM NAVIGATION COMPANY.—The report for the last half year showed a net profit of Ticals 159,127, out of which a dividend of 5% making 10% for the year was declared, and Ticals 1,632 carried forward after carrying Ticals 10,000 to the Reserve.

NEW GERMAN RIVER GUNBOAT LAUNCHED.—The Otter which was launched from the Shanghai Dock and Engineering Company, Ltd. had her speed trials, February 28th, outside Woosung, making an average of 14.5 knots. She will be utilized on the upper reaches of the Yangtze during the summer months. The vessel was constructed by J. C. Tecklenborg & Co. of Geestemunde and the engines supplied by the same firm. The re-erection at the Docks was under the supervision of Mr. Max Biese, representing the German firm. The machinery consists of two Schultz tube boilers with a working pressure of 16 kilograms to the square centimeter. It supplies two sets triple expansion surface condensing engines making 360 revolutions per minute. The Shanghai Dock and Engineering Company, Ltd., completed the work in much less than contract time.

CABLESHIP RIZAL IN COMMISSION.—This vessel purchased at Singapore by the Bureau of Navigation called at Cowie Harbor and took on 2,500 tons of coal for delivery at Iloilo and Manila, where she will go into commission in connection with the repair of Interisland cables.

BURMA PEARLING.—The returns for the year show but 42 tons of mother-of-pearl, 69 tons of green snail, one-half ton of trochus shell and four tons of sea slugs. New regulations have been issued regulating the leasing of areas for the cultivation and saving of these shells which may have the result of encouraging the industry.

SINGAPORE SHARK FIN TRADE.—Consul General Dubois directs attention to trade in shark fins to the value of $157,753 gold from Borneo, Ceylon, Penang, Madras, Celebes, etc., enjoyed by Singapore. Half of this import is reshipped to China.

KOREAN WHALING INDUSTRY.—The Oriental Whaling Company, which employs 85 Japanese and 18 Koreans, operates off the southeast coast of Korea and it is proposed to increase the capital and extend operations. Consul Gould of Seoul reports a half month's catch of 13 whales at $43,000 gold.

JAPANESE FISHERIES.—In a recent discussion in the Diet one of the delegates stated that this industry was slowly developing and that the annual production would reach 100,000,000 yen annually. He claimed that the most important line was the sardine industry, next to which came the bonitos. The Government had assisted 137 ships for pelagic fishing. Of the fishing boats 411 were utilizing petroleum motors.

MINES, MINERALS AND THE METAL TRADE

SIAMESE TIN INDUSTRY.—General Manager Scott of the Siamese Tin Syndicate, Ltd., in his report for the past year of investigations made by him makes the statement that one prospect has been examined that looks very promising covering about 280 acres of ground with a depth of 34 feet and averaging approximately 19 cents gold a cubic yard, and expects to report favorably on an additional 350 acres upon which boring is now in progress. He believes the company may rely on at least £600,000 worth of tin that may be worked at a profit. There are other prospects, but only one or two have been worked at a profit.

JAPAN'S COAL EXPORT.—The returns for the month of January show a total of 1,691,948 tons exported as against 1,396,743 during the corresponding month 1909.

JAPAN'S TARIFF ON MINERAL OILS.—The tariff has been fixed at 1.23 yen per kin (1.32 lbs.) on all mineral oils and crude petroleum is placed under the same heading. This protection is the result of the development of the industry in Niigata Prefecture where 1,300,000 yen worth of machine oil and 1,370,000 yen of crude petroleum were produced annually.

GOLD IN SUMATRA.—The report submitted to the shareholders of the Siam-Kedah Exploration contains a promising future for its operations in Sumatra, where it owns a concession on the South East Coast covering over 15,000 acres. Another gold property in the vicinity has paid 100 per cent. on investment and the Dutch Government has secured excellent results from prospecting in that region.

SHANTUNG MINES REDEMPTION.—A native report is to the effect that the Shantung gentry have agreed to raise a fund of Tls. 3,000,000 to redeem the five mines worked by the Germans in that province.

SERENDAH HYDRAULIC MINE.—The net profit for the year 1909 was $97,295 and a final dividend of 5% making 10% for the year was paid. A crushing plant costing $5,544.30 was installed during the latter part of the year.

MALAYA COAL MINES.—Development work on the deposits at Rawang are progressing, shafting and tunneling being pushed. According to reports six acres have been tested and found to represent deposits up to 600,000 tons. The upper surface contains some shale, but as the shaft descends purer coal is found.

IRON INDUSTRY IN JAPAN.—The total demand annually in Japan reaches approximately 750,000 tons, of which 140,000 tons are supplied by home production.

GRAPHITE IN SIBERIA.—A company has been formed to develop graphite deposits in Yenesei province where rich deposits have been discovered. It is estimated that it can be marketed at a cost of four kopeks a pound.

FUSHUN COAL TO PENANG.—A shipment of Fushun coal amounting to 4,000 tons was made last month on the Collier Eskdale from Dairen.

THE MADJAN MINING COMPANY.—According to the *Mining Journal* a meeting of this company was held at Batavia in December, at which the report of the engineer on investigations made was presented. His report places the average assay from test taken on the ground at 22.5 cents gold per cubic meter and the cost of dredging at eight cents gold a cubic meter. The concession covers 300 acres, of which 200 acres are considered paying ground. A dredger with a 32,000 cubic meter capacity per month and costing £10,000 was recommended and it is believed there is sufficient ground to occupy it continually for 13 years. This will be the pioneer dredge to operate in the Dutch Indies.

MANCAYAN COPPER DEAL.—The representatives of the Tellus Company of Frankfort on Main, Germany, have completed preliminary investigation of the property upon which the company holds options from the Lepanto Mining Company. One of the representatives has returned to make his report. It is understood that the Tellus Company is considering the advisability of investigating two other groups of claims connected with these extended deposits outside the options held by the Lepanto Mining Company.

F. M. S. TIN EXPORTS.—The total exports for January were 65,692 pikuls against 73,611 for the corresponding month the previous year.

THE PEKING SYNDICATE OUTPUT.—The January output of coal amounted to approximately 25,000 tons.

FINANCIAL, COMMERCIAL AND MISCELLANEOUS

JAPANESE IN KOREA.—Census reports place the number of Japanese in Korea at 150,000 and the value of their holdings at yen 147,000,000.

INDUSTRIAL SCHOOL AND COMMERCIAL AND INDUSTRIAL ASSOCIATION IN FORMOSA.—An industrial and mechanical school is projected at Taichu in central Formosa and will be inaugurated during the year. In the capital city of Taihoku the businessmen have formed an association with a bureau of information for the purpose of answering inquiries with regard to industry or commerce.

CHINESE WOOLEN FACTORIES.—The following is an excerpt from the report of the British Commercial Attaché at Peking:

"A new move is about to be made in the introduction of woolen clothing for the modern drilled army of China, and this may possibly prove the first step toward the more general adoption of woolen clothing throughout the country, a result which followed the same action in Japan. Unfortunately for the British manufacturer, there are indications that China means to supply her own demands in this respect. Two Chinese woolen factories have been recently established, which will deal with the requirements of the army board for woolen clothing. One is at Shanghai, a large building fitted with up-to-date Belgian machinery and employing at present several Belgian operatives to teach the Chinese students. I am told that this factory is capable of turning out sufficient clothing for 1,000,000 men. The other was established in 1908 at Chingho, about 6 miles from Peking. It is well equipped with British machinery and employs three or four British operatives. If the civilians of China show any inclination to follow the lead of the army in wearing wool, there is little doubt that the number of such factories will increase. It is perhaps too early to predict an opening in this connection for Bradford tops, but it must be remembered that a demand for tops followed close on the establishment of woolen manufactories in Japan."

NANYANG EXHIBITION.—Japan, Germany, England and the United States were each alloted 5,000 square feet in the buildings reserved for foreign exhibits.

THE AMENDED JAPANESE BUDGET.—The amendments reduced the revenue by yen 8,031,966 and the expenditure by yen 3,555,939 making the grand total in either column yen 530,439,573. There was a decrease made of yen 4,617,000 in the land tax and an increase of yen 1,008,000 in transit duties. The following were the principal items in expenditure cut down:

146,500 yen, proposed increase of allowances to the Peers, rejected; 191,500 yen, proposed increase of allowances to the representatives, rejected; 1,034,657 yen, curtailment made on the expenditure for provisions and provenders army; 75,140 yen, curtailment made on the expenditure for provisions and clothing (Navy); 129,351 yen, curtailment made on Prison Expenses (Justice); 15,036 yen, Expenditure for the dispatch abroad of a commission by the Residency-General for the study of judicial affairs system (Army), rejected; 15,000 yen, curtailment made on the Secret Service Fund for the Korean Garrison (Army); 92,556 yen, curtailment made on the Hydro-Electric Power investigation expenditure (Communications); 14,000 yen, curtailment made on the travelling expenses of the Kwangtung Government-General; 20,000 yen, banquet expenses for the Kwangtung Government, rejected; 100,000 yen, expenses for the construction of Formosan Government buildings, rejected; 80,000 yen, curtailment made on this year's instalment of the Arisan Forestry Expenditure; 40,000 yen, curtailment made on the *Sakura Maru* subsidy.

F. M. S. BANKING FACILITIES.—The Chartered Bank of India, Australia and China has opened branches at Klang and Seremban and will soon inaugurate a branch at Tongkah. The Hongkong and Shanghai Banking Corporation has opened a branch at Kuala Lumpur and in Malaca and the Mercantile Bank of India has also established at Kuala Lumpur.

MANCHURIAN BEAN CRUSHING FACTORIES.—In this department of industry the Japanese have invested yen 500,000 and the Chinese Tls. 1,139,000 and at least 39 factories are now in operation.

INDO-CHINA TRADE.—The foreign trade for 1908 amounted to francs 468,000,000 as against francs 481,000,000 in 1907. The largest item of export is rice, of which 1,234,000 tons were exported in 1908.

TURPENTINE IN SAGHALIEN.—Experiments made by the Japanese government have resulted in great interest in the forests of pine suited to the extraction of crude turpentine, of which there is reported to be wood available to the extent of 60,000,000 cubic tons and it is proposed to deal with the area on a system of 100 years rotation making the supply inexhaustible.

CREDIT FONCIER D'EXTREME ORIENT.—This is the new title adopted by the Société Franco-Belge de Tientsin of Brussels since it increased its capital from £200,000 to £400,000 by the issue of 20,000 new £10 shares. It has also been decided to raise a loan of £400,000 at 4.5% in the form of obligations.

FAR EASTERN MEDICAL ASSOCIATION.—A most successful meeting of this society was held during the early part of March at Manila at which representatives attended from every section of the Far East. The next meeting will be held in Hongkong.

PERSONAL AND GENERAL

Major Frank McIntyre, assistant chief of the Bureau of Insular Affairs, has been appointed to represent the Government of the Philippine Islands on the Board of Directors of the Philippine Railways. Mr. Paul Charlton, consulting lawyer of the Bureau, has also been named as representative on the board.

Mr. Charles Swift, President of the Philippine Railway Company and the Manila Electric Railway and Light Company, arrived in Manila last month and has been visiting the island of Cebu and Panay on an inspection trip over the company's lines there. Later he visited Baguio. He was the guest at a dinner in his honor at the Manila Polo Club at which Vice-Governor Gilbert was present with the staffs of the two railway companies. He was referred to as the pioneer American capitalist who had shown his faith in Philippine investment and responded to the effect that his faith was renewed and stronger than ever in the islands' future.

Sir Clifton Robertson, representing the financial interests of the British capitalists interested in the Manila Railway Company, has been visiting the Philippines for the purpose of inspecting the lines and investigating the proposed extensions.

Mr. Frank L. Strong, a leading Manila merchant, returned early this month from a tour round the world. He has been absent from the Philippines from July, 1909, and during his trip combined business and pleasure. He spent most of the time in the United States at the principal manufacturing centers and in New York City. He reports a great awakening of interest throughout the United States in the Far East. He returned with his family via Europe calling at the principal points en route

Mr. H. T. Anstruther, British representative on the Council of the Suez Canal, and Mr. Inchbald, manager in London of the Russo-Chinese Bank, have been appointed directors of the Peking Syndicate.

Mr. D. P. Ricketts, District Engineer, Shanhaikwan, of the Imperial Railways of North China, has succeeded to the position of Engineer-in-Chief and General Manager to succeed Mr. Kinder.

H. I. H. Prince Tsai Tao has been appointed High Commissioner to represent the Peking Government abroad on a tour of investigation and study of the military systems of Europe and America.

Mr. J. D. Clark, of the Shanghai Mercury, has been notified by the secretary of the British Institute of Journalists that he has been elected a Fellow of the Institute.

Mr. C. Dyer, representing the Honolulu Iron Works, has been visiting the Philippines in the interests of his company. He returned early this month with plans and estimates of the machinery and plant to be installed by the Pool Syndicate on its sugar estate in Mindoro for the installation of which the Honolulu firm has secured the order. This company has installed a number of large mills in Formosa.

The partnership existing between Alfred C. Lutz and Hans R. Lutz under the firm name of Lutz & Co. of Manila has been dissolved and the business will be continued under the same firm name by Mr. Alfred C. Lutz with Mr Fritz Muller as manager.

Mr. P. Tilley, of the firm of Messrs. Tilley and Muller of Shanghai, has sold his interest to Mr. E. J. Muller, and retires from the business. Mr. Muller will continue the business in his own name.

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COMMERCE ✪ ENGINEERING ✪ FINANCE

VOL. VI. MANILA, P. I., SHANGHAI, AND YOKOHAMA, APRIL, 1910 No. 11.

THE "WAIWUPU"

CHINA'S FOREIGN OFFICE

In the absence of anything like the semblance of a government as understood by Western minds, considerable interest and importance attaches to those individuals who represent the supreme power of the Chinese Empire in its dealings with foreign countries. Many have climbed the ladder of Chinese official life to the top rung of success, and from the Chinese point of view may be considered as really great and good men deserving of all the honors their countrymen can bestow upon them, but few, very few, have satisfied the foreign standard of greatness. It is true that the number of China's sons who have directed diplomatic intercourse with foreign powers is comparatively few, and from these only three or four names stand out with any prominence. The strength of a country may be gauged by the character and greatness of its chief statesmen, and especially by the one in charge of its foreign relations. China does not present many names of distinction in the paths of diplomacy as judged by foreign ideals, although for a certain type of state craft, in which intrigue, procrastination, obstruction and playing one power against another form the chief characteristic, they are past masters of the art, and have nothing to learn from the West. How far this trait is inherent in their nature, or adopted as the safest method owing to the weakness of the country, is a point which history will decide. The next ten years may be considered as the most crucial period of China's

CHINA'S STATE DEPARTMENT. THE NEW WAIWUPU BUILDING AT PEKIN
C. D. JAMESON, C. E., *Architect and Engineer*

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THE AMERICAN MINISTER TO CHINA

Probably the most difficult appointment President Taft has been called upon to fill is the post of Minister to China. Not that there were lacking many capable aspirants; nearly every one with any experience in the Orient felt himself fully competent to undertake the mission, and in the light of past relations with China, most any party politician would have filled the requirements. But times have changed, and with the opening of the Taft administration, a new and greater importance is justly attached to this far off post. Although the ambassadorships to the great European capitals rank first in the diplomatic list, the Legation at Peking takes precedence in real importance and calls for the highest order of actual work. American relations with Europe are firmly established and do not require a high order of constructive statesmanship to maintain the friendly status of affairs. But in China momentous questions bearing on the future of American trade and prestige have arisen and, if permitted to drift along without judicious and careful treatment, will bring about a crisis in our affairs. Already forces are at work undermining America's amicable relations with Japan, based on the latter's policy in Manchuria, and a campaign is and has been carried on to create and foster an unfriendly public opinion in America towards Japan. There are some delicate points of difference to be amicably adjusted before the situation is finally cleared, and these all have their origin in China and center at Peking. The sharp, often hasty and unfounded criticisms directed against Russia and Japan in Manchuria, based on incomplete or prejudiced information, have profoundly stirred American opinion, and the new Minister to China will in a sense be the American diplomatic representative to the three Powers, and his course will be followed with great interest by all the Chancelleries of Europe. America's future policy in China will be largely moulded and controlled by the reports and recommendations of the new Minister. Contrary to ideas entertained and voiced in some circles, his mission is not a sordid commercial one, to open the way for the investment of American millions in Chinese concessions, and subordinate the office of the diplomat to that of a commercial drummer. America has not reached that stage where it is imperative that her surplus millions find a field for investment in foreign countries. His mission is of a higher order. William James Calhoun, who will soon arrive in China as America's representative, comes on a mission of peace; he comes to exercise those faculties which have already won for him great distinction and honor in his own country.

Once before Mr. Calhoun was called upon by a former President to proceed to Cuba, at a time when great issues hung in the balance. Reports from Cuba about the cruelty of the Spanish Government filled the newspapers. Although only three American correspondents succeeded in entering the interior and joining the Cuban army, enabling them to write truthfully on the situation, their authentic reports were overshadowed by the great mass of deliberate prevarications furnished the press by Cuban sympathizers. One of the three American correspondents who participated in the heaviest fighting of the war and travelled the Island from end to end with the insurgent army is now the proprietor of the FAR EASTERN REVIEW. And he alone, of all the American correspondents in Cuba, warned his countrymen, through the columns of the *New York Herald*, of the untenable position the United States was being drawn into through the wilful misrepresentation carried on by the enemies of Spain. At that time occurred the death of Dr. Ruiz, a naturalized American citizen who was imprisoned in the Guanabacao jail and so severely treated that death resulted. His alleged murder by the Spanish authorities was to be made an issue between the two governments. Consul General Lee tendered his resignation to take effect if the Government did not back him up with a man-of-war in the harbor of Havana. War talk was freely indulged in America. President McKinley, feeling that the reports were highly coloured, wanted the exact facts, and he wanted them from only a cool headed, far seeing, careful investigator of trained judicial temperament. Mr. Calhoun was the man selected by President McKinley to investigate conditions in Cuba and determine the policy of the Government. While circumstantial evidence was strong against Spain, no sufficient proof could be found on which to base a decided stand. Mr. Calhoun's investigation of affairs fully confirmed the articles of the *Herald* correspondent as to actual conditions, and he reported, on his return from Havana, that it was impossible to arrive at any direct conclusion owing to the difficulty of distinguishing the truth from the many improbable stories circulated by the Cubans. Mr. Calhoun's report made a deep impression, as he was the first impartial judicial investigator who criticized Spaniards and Cubans alike, and had it not been for the blowing up of the Battleship *Maine*, his recommendations would have prevailed and a war with Spain averted. But so great was his influence with President McKinley that throughout the crisis, and subsequent period of the war, he remained in Washington at the President's side in an advisory capacity. Mr. Calhoun was afterwards appointed an Inter-State Commerce Commissioner, which he resigned after about eighteen months' service.

In 1905, President Roosevelt was compelled to take action in the matter of Venezuela, where President Castro was carrying things with a high hand, and the interests of several great Powers were being trampled on to the extent that an infraction of the Munroe Doctrine appeared inevitable. And again, when vital questions were to be settled, President Roosevelt called to his aid the most level-headed and practical man he could find, and again Mr. Calhoun was sent on a mission of investigation to shape the attitude of the Government.

Such is the man who is once more honored by President Taft to carry to China and the nations interested in the Far East the message of America. Once again portentous questions are to be investigated and disposed of, and Mr. Calhoun's record fully qualifies him for the delicate task, and his countrymen will again accept and be guided by his recommendations.

The new American Minister has the reputation of having very little to say, except when occasion demands vigorous speech. Americans may congratulate themselves that the President has selected such a man to fill the difficult post at Peking, and we feel confident other nationals in the Far East will also share this feeling in view of the many questions which have arisen requiring the utmost tact and diplomacy in their handling.

THE RUBBER BOOM

A comparison of present quotations on rubber shares with those of a year ago reveals an astounding advance in prices, and the healthy upward trend of the market would seem to indicate that the end is not yet, notwithstanding many warnings from the more pessimistic that all this boom is an artificial movement bound to result in disaster to the unsophisticated. The pessimist predicts overproduction, a possible artificial substitute, destruction of rubber areas by pest and disease and all forms of disaster. The optimist declares that while any large increase in production might reduce the price, it would establish the product as a staple commodity, increase the use of rubber, and maintain a reasonable price sufficient to assure a fair profit with a firm market.

There are not a few who declare that only the panic in the United States prevented an earlier advance in prices and that the demand is increasing more rapidly than the supply. Indeed it would seem that, for at least five or six years, it will be impossible to maintain a supply to keep anywhere near meeting the demand. Many new companies are being floated and old companies of a few years standing are joining the ranks of the producing companies, but up to the present time there seems little prospect of a change in the upward tendency of the share market.

In comparing Messrs. Fraser & Co.'s Circular of April 2nd, 1910, with that of the corresponding date, 1909, we find 71 companies listed with

an aggregate capitalization of £5,556,000 sterling and $9,425,000 Straits Cur., while in 1909, on the same date, there were only 39 companies listed with a capitalization of £2,291,000 sterling, and $1,800,000 Straits Currency

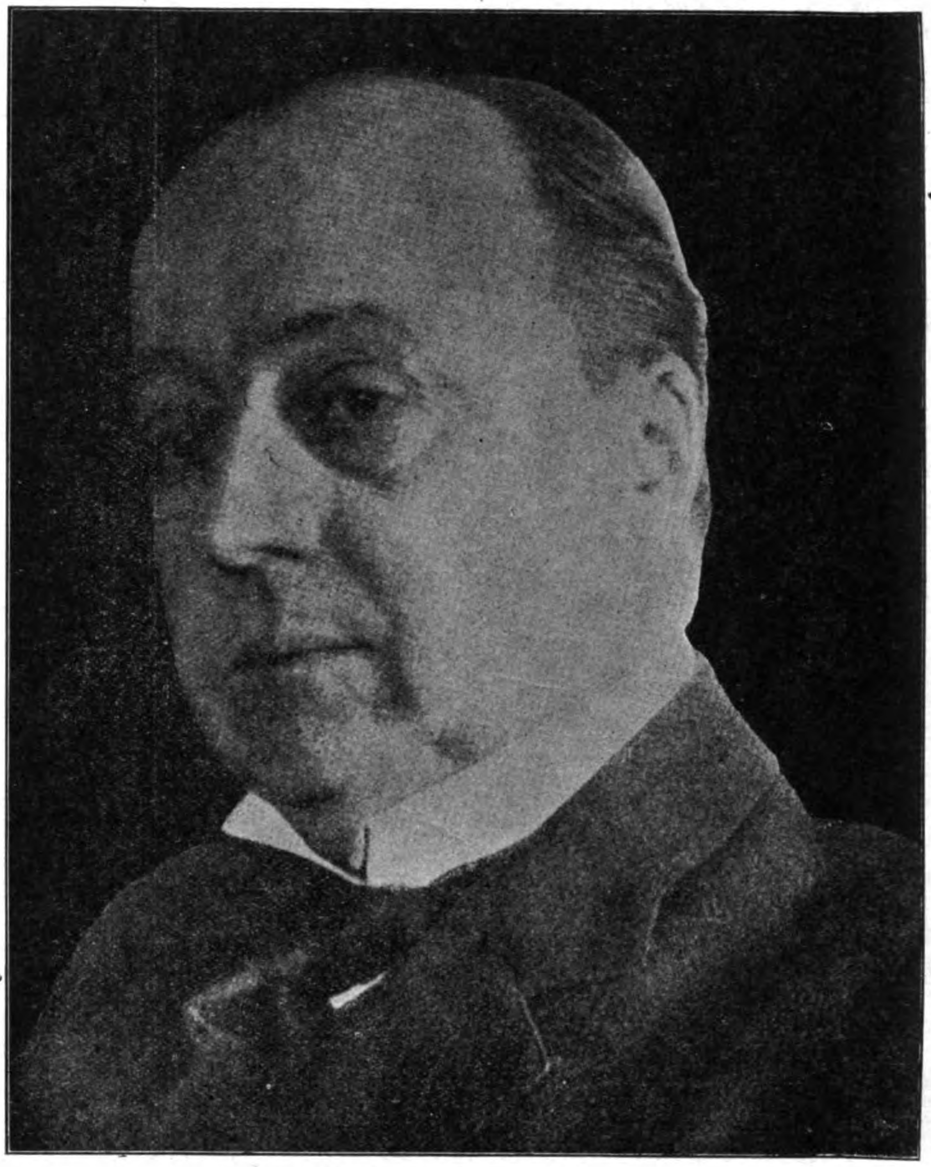
A comparison of the closing quotations of old company shares on these two dates is pleasant occupation for the rubber pioneers of Malaysia. For instance, we find a $10 share of the Balgownie Rubber Estate, Ltd., quoted at $26.75 in April, 1909, and on April 2nd, 1910, the closing quotation was $270. This company was formed in 1905.

Other remarkable advances are those of the $100 shares of the Singapore & Johore Rubber Co., Ltd., during the twelve months referred to from $120 to $1,200; Malacca Rubber Plantation Co., Ltd., £1 shares, from £1 13*s.* to £17 0*s.*; the Kuala Lumpur Rubber Co., Ltd., £1 shares, from £1 13*s.* 6*d.* to £12 15*s.* There are many more instances of remarkable advance in prices and there is not an instance of a going company lacking attention in the share market. Even the 1910 companies are receiving the benefit of the upward trend. Some of them have been organized to take over developed and partly developed plantations, but already their shares are away above par. The Bukit Rubber Estates Ltd., $10 shares, were quoted at $23.50, and the Changkat Serdang Estates, Ltd., $10 shares at $26.

The *London Times* furnishes some statistics in a review of the rubber prospects and draws some interesting conclusions. We quote:

"It appears that the production of plantation rubber in 1912 will amount to about 23,733,000 lbs., equal to about 10,000 tons, and in 1914 to 47,963,000 lbs., or about 21,000 tons. Roughly, the world's production in 1909 amounted to 70,000 tons, of which Brazil contributed 40,000, plantation owners 4,000, and the rest of the world 26,000. Now, assuming that the Brazilian production in 1914 remains in the neighborhood of 40,000 tons, that the production of indigenous rubber-yielding trees in other parts of the world is maintained at 26,000 tons, and that the output of plantation companies reaches 21,000 tons *plus* a total of 6,300 tons, or 30 per cent., representing the output of the rupee companies and private producers, a total of 93,300 tons is reached. It is just possible, however, that the basis of calculation of the production of plantation rubber may have been rather too high to make adequate allowance for 'resting' the trees, and for trees damaged or otherwise 'put out of action.' Allowing, therefore, 20 per cent. under this heading, or 5,460 tons, an aggregate production in 1914 of 87,840 tons is obtained. This estimate is, of course, merely approximate, but it may serve to indicate in a general but reasonable way the course the rubber market is perhaps likely to pursue.

"The question which investors would like very much to have answered relates to the state of the demand in 1914. The recent marked increase in the call for rubber is largely due to the rapid development of the motor industries. Another factor is the increasing demand by electrical undertakings. A trustworthy authority has estimated that a further 20 per cent. of the supplies last year could have been absorbed had they been available. A further important consideration to be remembered is the quantity of re-manufactured rubber which is now used. One estimate places the amount of this reclaimed rubber produced last year as equal to the total supply of the new product—namely, 70,000 tons. If the price of rubber should fall below the level at which the remanufactured article can be produced profitably, it will be seen readily that the demand for new material would expand at once, so that the plantation product which can be produced at a less cost than the wild variety can be gathered and at the same time commands a higher price, is not likely to come through the ordeal of lower prices so very badly."



HONORABLE PHILANDER CHASE KNOX
THE GREAT LAWYER WHO IS NOW DIRECTING THE FOREIGN POLICY OF AMERICA

The *Standard*, in an optimistic vein, says:

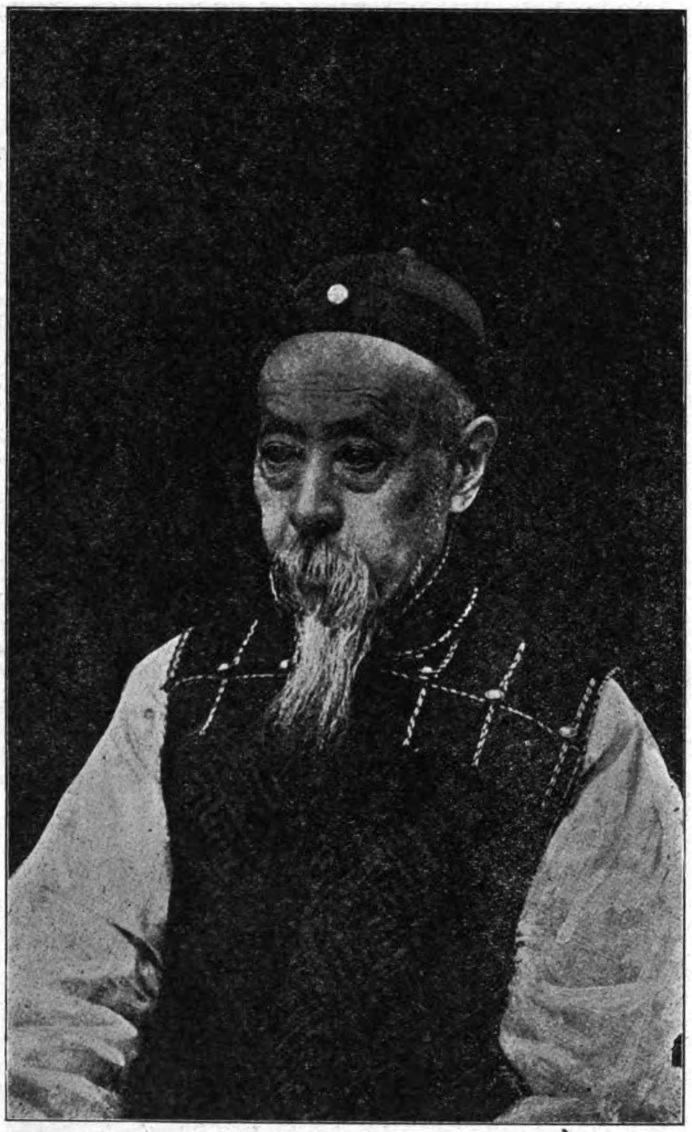
"With regard to the present price of rubber, opinions prevail in some quarters that it is inflated. These opinions are wrong. On the contrary, there is every likelihood that the price will be further raised owing to the continuously increasing demand for the product, and this contention is borne out by the fact that many prominent manufacturers have contracted for supplies—in some cases to the end of 1912—at prices ranging from 6*s.* to 8*s.* per pound. That their shrewdness is based upon actual knowledge is hardly a matter for doubt, as the consumption of rubber at the present time is, perhaps, greater than the output."

In a report on the rubber industry in the Malay Peninsula covering the first ten months of the year, 1909, Consul General James T. DuBois writes:

"To show what abnormal conditions prevail in the rubber market, it may be mentioned that not only the flotation of new companies is frequent, but the stocks of old companies have risen at an astonishing rate, the market value being enormously above the par value of the stock. For example, one company capitalized at $500,000, according to the present stock sales, is worth $4,445,000. Another company with a capital stock of $4,000,000 is multiplied by the stock sales to $16,000,000, while still another, capitalized at $750,000, is according to present sales, valued at $6,000,000. In no instance are the rubber trees upon the plantations of these companies equal to the stock values on the market, and yet good dividends will be paid this year on all the companies referred to.

"The future of rubber planting seems assured for the next five to eight years. The real danger during this period will be rubber substitute, insect pest or disease. After this period overproduction may play an important role in the rubber industry. The amount exported from the peninsula during the first ten months of 1909 was 4,831,823 pounds, an increase over the same period of 1908 of 2,385,771 pounds or nearly 100 per cent."

At seven shillings a pound, the average price in 1911 contracts, the average net profit per pound would be at least six shillings. It is gathered from a review of various authorities that the cost per tree of rubber bearing plants does not exceed two shillings, and as each tree is expected to produce two pounds of rubber, the cost of one pound would be one shilling. The profit therefore on investment based on these figures is approximately 600 per cent. The cost of production might be doubled and the market price cut right in two and still the investor would reap a profit of 75 per cent. The price might even drop lower until a profit of 20% on capital would be the limit and yet the investment would prove attractive. The prospect of such a radical drop in prices within the next decade is not to be expected. Even the high quotations for rubber shares seem consistent with enormous profits in sight for the next few years and would even stand an advance at the present writing.



HIS IMPERIAL HIGHNESS YI-KUANG, THE PRINCE OF CHING
COMPTROLLER GENERAL OF THE WAIWUPU (BOARD OF FOREIGN AFFAIRS)

THE WAIWUPU

(Continued from page 497)

political existence, and many questions broadening into issues of great import will arise to tax the strength of her strongest statesmen. Ten years from now the question as to whether China is to preserve her political entity will be settled one way or the other and from now on the characters and actions of her leading men will be closely scrutinized under the search light of publicity. China labors under the disadvantage of having only one set of officials to direct her affairs. Instead of political parties to which the Throne can turn as a remedy for the misgovernment of incapable officials, the only alternative is to shift them around from post to post, now degrading some and elevating others. Once in official life, above the rank of Taotai, there is no rest for the official, except the period of mourning or retirement, and this latter is sometimes more difficult to secure than the original appointment. As the official passes through the various grades of Judge, Treasurer, Governor and Viceroy to the higher executive posts of Presidents of the Boards, or seats in the Grand Secretariat or Grand Council at Peking, their provincial experience is so invaluable that retirement is rarely permitted until death finally claims them at their post. Many are degraded or dismissed on various good or trivial charges, but as long as the official fills his post with honor, and contributes his regular quota to the maintenance of the system, he is solid for life. So it is that at present the directing forces behind the government at Peking are all men well past sixty, who should long ago have retired from active life and made room for younger blood. But this cannot last indefinitely; the older men must soon be gathered unto their fathers, and the younger and more progressive element will take over the reins of government. Whether they will come into their own in time to save the country, is a question which cannot be answered yet, as the Regent shows no sign of permitting his venerable councillors to retire, although many have repeatedly prayed for this relief. While considerable interest attaches to the members of the Grand Council and the Presidents of the Metropolitan Boards, it is to the Board of Foreign Affairs, or the Waiwupu, that the foreigner has focussed his attention.

Hampered in their actions by the knowledge that their country is as yet too weak to enforce its rightful sovereignty, the position of the Foreign Ministers is by no means an easy one. On one side foreigners demand the development of the Empire, and sugar-coated proposals cloaking covert designs on the sovereignty of the state have to be carefully scanned, and on the other with the intense antagonism of the native gentry to granting further concessions, the path of the Chinese diplomat is not an easy one, or his position a sinecure.

The Chinese Foreign Office dates back to January 1861, when an Imperial Decree authorized the creation of the Tsung-li Ko Kno Shih lou Yamen, or Yamen of Foreign Affairs, for the express purpose of having some fixed channels through which relations with the foreigner could be negotiated. The first president of this body was the celebrated Prince Kung, a brother of the reigning Emperor Hsien-Fang, and with him were two associates of high rank. The following year the membership was increased to seven and by 1869 to ten, the members consisting of Presidents and Vice-Presidents of the various Boards and a majority of the members of the Grand Council. The membership was subsequently again increased to eleven and then reduced to eight. For over thirty years after its organization the Yamen was not recognized by the official Red Book, or record of state departments.

By the terms of the Peace Protocol of 1901, the old Tsungli Yamen was abolished and a new Ministry of Foreign Affairs, ranking above all other Boards and called the Waiwupu, was established. The new Ministry was headed by the Prince of Ching, who had been the senior member of the old Yamen, and who is still the nominal head of the board, although the actual work is carried on by two assistant Presidents and two Vice-Presidents. Following the rule laid down by the previous rulers, the leading statesmen in the Grand Council and most important ministry is a member of the Imperial clan, and for many years now Prince Ching has filled this important niche in the complex system known as the Chinese government. As the ranking official of the Empire by virtue of his position as head of the Waiwupu and his seat in the Grand Council, and Presidency of the

H. E. NA TUNG
SECOND PRESIDENT OF THE WAIWUPU, GRAND SECRETARY, ETC.

H. E. YANG-SHU

COUNCILLOR OF THE WAIWUPU (FORMER MINISTER TO JAPAN)

HIS EXCELLENCY, LIANG TUNG-YEN

JUNIOR PRESIDENT OF THE WAIWUPU

Board of War, Prince Ching is undoubtedly the most interesting figure in Chinese politics, and under any other government in the world he would be the strongest statesman of his country. But although he fills the most important posts, it can hardly be stated that his abilities are on a par with his elevated positions.

Since Prince Ching has held the nominal Premiership of China, others lower in rank but of greater capacity and strength of character

THE LATE TAI HUNG-TZE

GRAND COUNCILLOR, PRESIDENT OF THE BOARD OF LAWS, ETC.

have been the real rulers of the vast Empire. Li Hungchang during part of his official life was the predominant factor in directing the affairs of state, and after him the energetic Yuan Shi-kai gathered into his strong hands, the reins of government, and controlled affairs while the Premier lived his life of ease within his palaces. Prince Ching has been severely criticized for his lack of interest, or rather complete indifference, to the duties of his office, and is accused of being the most corrupt official of the Empire. *The Times* correspondent describes him as "amiable but corrupt, and for a generation he has stood for all that is worst in Chinese officialdom. All stories tell of his rapacity, his greed, his unscrupulous sale of office, his indifference to the affairs of State. His wealth is enormous, yet no charitable action has ever been recorded in his favor. Every new minister in every office of emolument has to pay him toll." The Chinese themselves have gone further than *The Times* correspondent, and only recently Censor Chiang Chun-lin denounced Prince Ching in the most scathing terms calling him an "old traitor" who in addition to finding fat jobs for his relatives and adopted relatives and friends recommends worthless and corrupt persons for high offices. In fact the denunciation was so severe that the Prince Regent was forced to reprimand and afterwards degrade the censor for his temerity in attacking the methods of Prince Ching. But these charges, however, seem well grounded from circumstantial evidence, but they are not so much an indication of Prince Ching's personal disregard for political morality as proof of the workings of a system of which he is, by virtue of his position, the main prop. There is no provision made in the expenses of the government for the support of the many members of the Imperial Clan, who are too indolent or too ignorant to accept a working post, but who have to be provided for. Money is needed for their support, and some one who can be trusted must see to it that they are supplied with their quota of funds, and such a one must perforce be one of them, and in a strong position to assert his authority and force the officials to stand and deliver. No Chinese official could be trusted with such a position, and while they can faithfully carry on the real labors of government, there must always be a strong representative of the Imperial Manchu Clan in superior authority to insure the collec-

His Excellency, CHANG YING-TANG, Minister to America

tion of the sums exacted for official appointment or promotions. All officials are appointed or dismissed by the Grand Council, and even the strongest Viceroy must keep in good graces with the leader of the Council or his tenure of office will not be of long duration. As long as he contributes liberally in cash, he is sure of his post and further honors.

Censor Chiang Chun Lin, who was recently reprimanded and dismissed by the Regent for his attack on Prince Ching, in his scathing indictment gives the world a glimpse of the inner workings of the spoil system, by which immense fortunes are piled for the Boss, and maintain those "higher up" in luxury and ease.

In the impeachment, Chiang commences his argument from the political disturbance of 1900, and points out the disloyal conduct of Yuan Shih Kai. He goes on to state how Prince Ching managed to place his coterie in important positions in the Central as well as in the Provincial Governments to make good the influence he lost through the fall of Yuan, and how thereby another element of corruption was introduced in the Court. He says he impeached Prince Ching and his son no less than eight times during the reign of Emperor Kuan Hsu; he has repeated the attack on the Prince several times since the present sovereign ascended the Throne, but all in vain. In accordance, therefore, with the Decree which commands the Censors to boldly speak out their views, because the fitness or otherwise of high officials would affect the administration to a great extent, he presents this memorial, impeaching the Prince, and requests the Throne to open the Governmental positions to all that are worthy, not restricting them to the followers of one person who is partial and dishonest.

"The Governor of Kiangsu, Pao Fen, the Governor of Shenhsi, En Shou, and the Governor of Shantung, Sun Pao Chi, are relatives of Prince Ching; the Provincial Treasurer of Shanhsi, Chih Lin, is a nephew of the Prince by marriage; the Salt Comptroller of Chekiang, Heng Chi, is a person formerly employed at the Prince's residence; the Viceroy of Chihli and the Commissioner of Trade of North China, Chen Kuei Lung, is a son-in-law of the Prince; Chu Lin, son of the Governor of Anhui, Chu Chia Pao, became the adopted son of Tsai Chen, son of the Prince, by making him valuable presents in the shape of sable skins and jewels; the President of the Board of Posts and Communications, Hsu Shih Chang, was placed in the position through the recommendation of Yuan Shih Kai; the Liangkiang Viceroy, Chang Jan Chun, and the Governor of Kianghsi, Ping Ju Kuei, belong to the coterie of the Prince being the relatives of Yuan Shih Kai.

"The old knave usurps the position," says the memorial. "His partisans are given employment in important posts. Good and loyal subjects not belonging to his coterie are rejected, their promotion being absolutely prevented. He is not a fit person to save the Empire from the present critical situation, and give assistance to national administration." Thus it is clear that he pointed out the unworthiness of the Prince and expressed his belief that the existence of the Prince and son in the Central Government will prove a great obstacle to the development of a constitutional system."

Censor Chiang's picture of the inner working of the situation may well have exasperated the venerable prince who is the real power in the land. If true, it corroborated what everybody suspected, and a public exposé only tends to inflame the country against the Manchu aristocracy. Viewed in this light, the Regent would be compelled through motives of policy to discredit the story by censuring the censor; if false, the censor only received his just dessert. This would indicate that seven governors and a President of a Board and several other high officials having the control of funds were the direct patronage of Prince Ching, in addition to other executives compelled to pay partial tribute to him by virtue of his position and influence. A Peking dispatch to a Shanghai Chinese paper sheds a little further light on the matter:

His Excellency LORD LI CHING FANG, Minister to Great Britain

A PRINCE'S WEALTH.

"A Peking dispatch to local vernacular paper says that a certain Prince (? Ching) is now considered to be the richest man in China. His property in northern provinces is estimated to aggregate 90,000,000 mow. The jewelry, curios and furniture in his establishment are valued at Taels 20,000,000 and he is said to possess a credit balance with the Hongkong and Shanghai, the German, the Russo-Chinese and other foreign Banks amounting to about Taels 13,000,000. Other sundry and minor deposits are not included in this enormous amount."

If Prince Ching has accumulated this large fortune, it gives support to the accusations made by Censor Chiang, and also gives the outside world an idea of the vast amounts which have been passed on to those "higher up" for whom Prince Ching, by virtue of his position, must have been the collector of revenues. This valuation of Prince Ching's wealth lends color to the estimate of nearly $1,000,000,000, gold, as the amount of the Imperial treasure hoarded within the vaults of the palaces.

If the point is accepted that Prince Ching, as the leader of the Imperial Clan, holds his various high offices to insure the smooth operation of the intricate system for collecting the tribute for their maintenance, it must be conceded that these affairs must necessarily consume much of his time. *The Times* correspondent charges him with rapaciousness, but other disinterested authorities, who have come into contact with him, describe him as a highly educated, good-natured and kindly old aristocrat, with whom money is a matter of no importance. However, *The Times* correspondent is on firmer ground when he criticizes Prince Ching's utter neglect of the high duties entrusted to his charge.

"For years he has not visited the Waiwupu. He dwells in a sphere apart from his fellow-Ministers, and, in his private residence, reluctantly accords rare audiences to the representatives of the Great Powers. They are rare audiences indeed. For the discussion of foreign affairs he has granted one of the most powerful Foreign Ministers in Peking two audiences in three years. The average number of times that, as President of the Foreign Office, he discusses foreign affairs with the foreign representatives is less than one interview per representative per annum. Age and decrepitude are the reasons given for his neglect of duty. His age is seventy-two, but, while this can be urged as an excuse for his neglect of office, it cannot be advanced as an excuse for his retention in office."

President Taft's personal cablegram to The Regent last summer, however, seemed to awaken the Chinese authorities to a sense of their obligations, for it is reported that, following the receipt of this dispatch, the Regent hurriedly called the members of the Waiwupu to the palace, and for some time afterwards there was a marked difference in the atmosphere of the Foreign Office. Prince Ching, after an absence from his official desk of many months, again made his appearance. But he is old and cannot be expected to retain his grip much longer. He is the last of the group of China's strong men who have directed the affairs of the nation for the last decade, and while he may have taken only a small part in the active work of administration, there is little doubt but that his advice carried great weight with the late Empress Dowager and still does with the Regent. Prince Ching is ready to retire, and, according to trustworthy reports, he has several times prayed the Regent to be released from his duties and permitted to end his days in rest and peace in the palace presented him by the late Empress Dowager. But there is none amongst the Imperial Princes of sufficient years and experience to take his place and represent Imperial interests in the two highest councils of the State. Prince Pu-lun has been named as his successor, and as no other Prince of the blood equals him in capability and accomplishments, it appears almost certain that he will be selected to wear the mantle of Prince Ching.

THE NANYANG EXHIBITION

China's First Great National Show

The last incumbent of the Viceregal chair at Nanking, next to Yuan Shi-kai, was the most progressive official of the Empire, and under his rule many innovations were tried out. Among the many schemes devised by H. E. Tuan Fang to advance the interests of his people, the idea of a great exhibition modelled on foreign lines took firm root, and the funds appropriated to carry it into execution. This will be the first exposition in China, and although handicapped for sufficient funds to carry into execution all the details, the show promises to be a revelation to visitors when it is declared open.

H. E. TUANG FANG
EX-VICEROY OF THE LIANG-KIANG PROVINCES, ORIGINATOR OF THE NANYANG EXPOSITION

In response to a memorial from the Viceroy to the Throne, the following edict was issued by the Regent and Grand Council:

August 28.

"The encouragement and stimulation of industries are important measures in enriching and strengthening a country and we have on numerous occasions commanded the Viceroys and Governors of the different provinces to take steps to attain that end with energy. We have also delegated Commissioners to exhibitions in foreign countries in order to increase commercial knowledge with a view to improvement and competition. With the vast territory and innumerable products in Our Empire unless commodities are collected for exhibition and study, improvements in manufacture may be looked for in vain.

"With reference to the joint report from the Ministry of Agriculture, Industry and Commerce on the means to organize the Nanyang Industrial Exhibition and the exemption of exhibits from duty, we find that the public in the Liang Kiang are in an advanced state of enlightenment and an Exhibition should be held to serve as a model for other provinces. Chang Jen-chun, Viceroy of Liang Kiang and Superintendent of Trade for Southern ports is appointed President of the Exhibition, and Viceroys and Governors of all provinces are commanded to superintend co-operative associations and matters in connexion with exhibits.

"All exhibits should be severally exempted from duty and likin. When a date has been appointed for opening the exhibition the Ministry of Agriculture, Industry and Commerce should apply to Us for the appointment of a high commissioner as Inspector-General formally to open the exhibition in order to make manifest Our hearty desire to encourage agriculture and commerce."

The Nanking treasury appropriated the sum of $1,500,000 Mexican, and guaranteed a similar amount to be subscribed by Chinese merchants. Brigadier General Chin Chee, of the new model army, who visited America as one of the Chinese Commissioners to the World's Fair at St. Louis in the suite of Prince Pu-lun, was appointed Director-General of the Exhibition Board, and he has several able assistants who have also visited some of the great fairs of America and Europe. The exposition will cover several acres, besides a one-mile race track. Scores of buildings are now going up and fifteen provinces have taken reservations. It will open May 19 and last six months.

H. E. CHANG YEN-CHUN
VICEROY OF THE LIANG-KIANG

Mr. George Mooser, the only foreigner connected with the board, was appointed Director of Publicity and Amusements and furnishes the following advance information through the *North China Daily News:*

"It is perhaps unfortunate that greater accommodation has not been secured on the extensive plain of Nanking, but the grounds have been judiciously laid out with broad roads and with due consideration for the scenic effect obtained by leaving some of the natural growth, especially bamboo groves, as a background to the buildings. Seen to-day, the exhibition is still more than one month from the date of opening and much remains to be done in putting the grounds in order. Flower beds and paths have to be made, unattractive ponds of impossible hues and malarial proclivities have to be converted into ornamental waters. But the main buildings are rapidly nearing completion, and work is well in hand on the fifteen

pavilions now in course of erection by different provinces of the Empire.

"From the plan of the Exhibition which we publish to-day an idea can be formed of the general configuration and extent of the grounds.

H. E. General CHIN CHI
DIRECTOR GENERAL OF THE NANYANG EXHIBITION

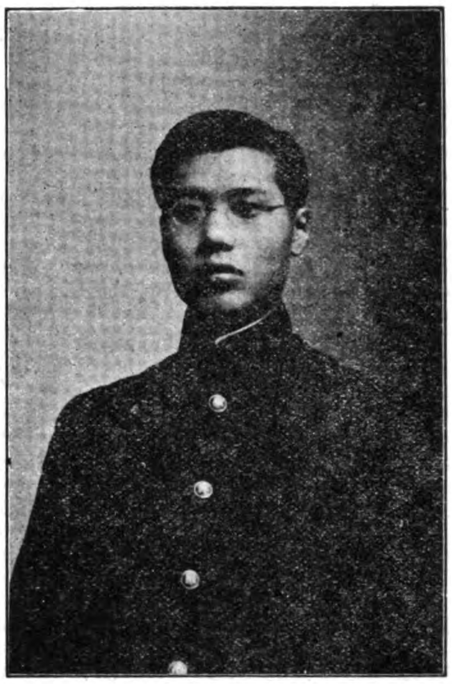
Roughly speaking the main part of the Exhibition occupies a space 500 yards by 400 yards; but the pleasure grounds extend beyond, and a race course is promised in connexion with the undertaking with a circuit of one mile. As already stated the buildings have been suitably placed and no little pains have been spent on their individual architecture. With one exception the chief buildings are single-storeyed, and for that reason they sacrifice some of the artistic merit that can be secured by larger erections of this nature. Moreover, if the exhibition is to be the success anticipated, there is likely to be considerable over-crowding at the busiest times of the day.

"The widest possible range is to be covered by the exhibits, which will include all kinds of national produce and manufactures, Western goods and machinery, together with a multiplicity of things connected with education, the liberal arts and relating to the various philanthropic enterprises of missions in China. A new road from the direction of the city leads to the main entrance of the Exhibition. On either side Chinese houses are springing up, while two large buildings, now almost finished, will be utilized as hotels for foreign visitors. An ornamental arch of characteristic Chinese design stands in front of the main entrance, which is itself connected on either side with the Educational and Industrial Arts Buildings. The main road branches off a short distance from the entrance to enclose an oval, in which are situated a clock tower of brick to be used for observation purposes; the Public Assembly Hall, in which lectures will be given throughout the eight months of the exhibition on topics of the time by Chinese scholars and foreigners; the Executive or Administration Building, and beyond, the most conspicuous feature of the Exhibition, the Gallery of Fine Arts.

"The foreign restaurant is just beyond the Fine Arts Buildings. On the left hand side are situated the buildings devoted to Agriculture, Foreign Exhibits, and Machinery and Transportation. On the opposite side are the Fisheries, Porcelain, Foreign, Chinese, Japanese, and China Mutual Life Insurance Co.'s buildings. The buildings of the different provinces are scattered about the grounds, most of them almost ready for the reception of exhibits. The Race Course, wherein will be held pony and motor races, is situated at the farthest extremity of the grounds.

"In addition to the Assembly Hall already mentioned there is also being built, just outside the exhibition enclosure, a great Provincial Assembly Hall, at the cost of $80,000 which will also be available for lectures by both Chinese and Western scholars.

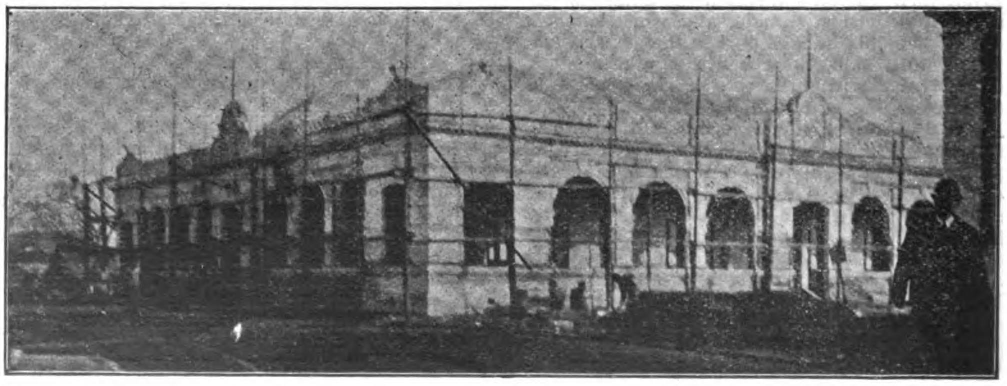
"Happily in Nanking there is a very friendly feeling between officials and missionaries— whose combined educational work has won the respect of the authorities; and, indeed, a friendly feeling between Chinese and foreigners generally. And as this exhibition is a fine opportunity for cultivating harmonious relations between East and West, to the appreciation of the better points of each, a recognition of Western philanthropy and the ex-



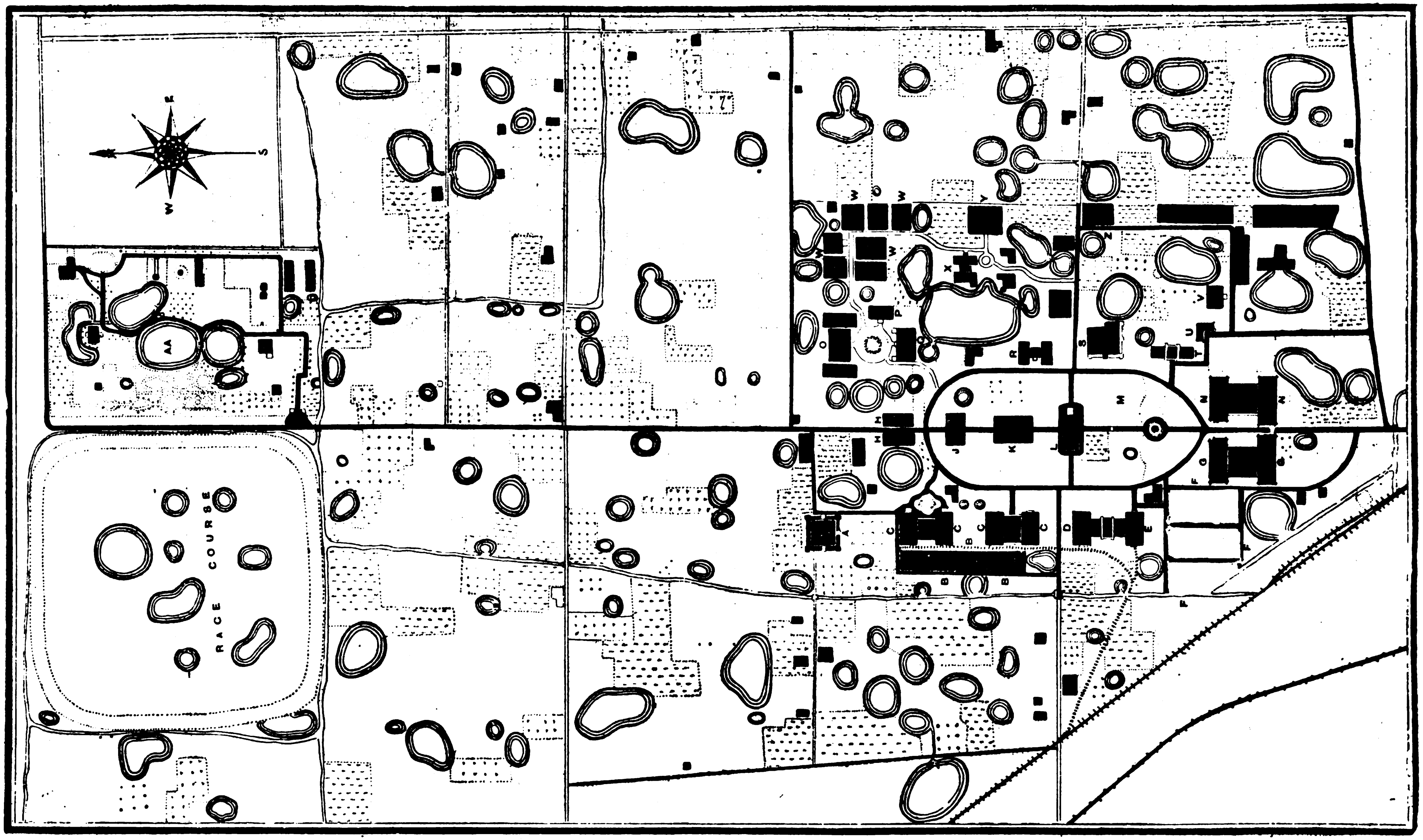
Mr. SHEN
ASST. DIRECTOR GENERAL

H. E. HWANG
DIRECTOR OF CONSTRUCTION

Gen. CHIN CHI



BUILDINGS OF THE CHINESE EXHIBITORS OF THE STRAITS SETTLEMENTS



PLAN OF NANKING EXHIBITION

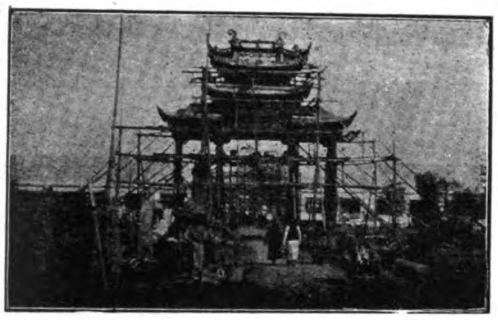
Scale: 400 feet to one inch.

Letters read down from top left-hand corner.

A Agriculture
B Storehouses
C Foreign exhibits
D Machinery
E Transportation
F Recreation grounds
G Industrial arts
H Restaurant
J Fine arts
K Executive
L Public Hall
M Telephone
N Arts and education
O Bazaar
P Szechuen exhibit
Q Silk exhibit
K Tea exhibit
S Chinese exhibits from foreign countries
T Military exhibit
U Public hygiene
V Porcelain exhibit
W Provincial exhibit
X Pisciculture
Y Hunan exhibit (?)
Z Chihli exhibit
AA Pleasure grounds

The main entrance to the exhibition is in the south centre of the above map; to the left of it are the Nanking City Railway and main road respectively. The portions shaded with three dots represent bamboo, the other shaded portions represent mulberry and vegetable plantations; circles of three shaded lines indicate water, and the thick lines the main avenues through the grounds.

tension of Western commercial relations with China, a "Christian Committee" of leading missionaries has been formed to supervise the medical, philanthropic and educational exhibits, with plans—if help be forthcoming—to build social rooms, cloak-rooms, tea-rooms and the like for foreign guests and native Christians, which, together with the cost of maintenance, will entail an expenditure of about $5,000. As all this will react upon Western commercial interests, it is hoped by the promoters that the various Western exhibitors will readily assist in the matter.



MAIN ENTRANCE

"Side-shows are to be provided in what is known as the Midway, where professional amusement caterers will hold sway. At a later date we shall be able to announce the special arrangements to be made by the Shanghai-Nanking Railway for visitors to the Exhibition. It is enough here to say that the trip on this excellently managed line adds not a little to the pleasure of a visit to Nanking.

"For the design of the buildings Messrs. Atkinson and Dallas, of Shanghai, have been responsible, while the system of gardening has been ably carried out by Mr. N. C. Huang, who, with the Director General, H. E. Chin Chee, visited the American Exhibitions."

One feature will be aviation week, when machines of the world's best models will be on exhibition and put to practical test. The prize will be the contract with the Chinese government, which has decided to be as well equipped as any other nation with these zephyr crafts, and it is expected that at least fifty machines will be ordered from the winner by H. E. Chin Chee, who is in correspondence with the most famous aviators in Europe and the United States.

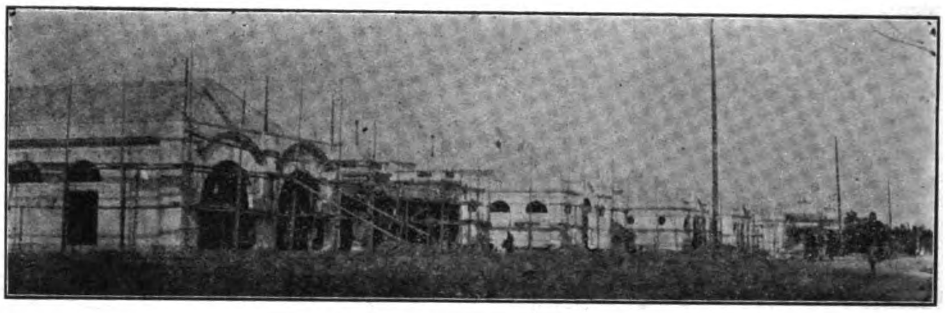
A superb exhibition of fine point Irish and Venetian lace and unequalled rose point lace, and a great display of jade never before equalled in magnitude in any Oriental exposition, will be shown. All the processes of manufacture from huge blocks of jade to the tiniest carvings are being gathered by the exposition authorities.

It is expected that the manufacturing and fine arts buildings, and the athletic and racing meets, will be of special interest to all foreigners. An electrical display, consisting in part of a tower with 10,000 lights, is planned.

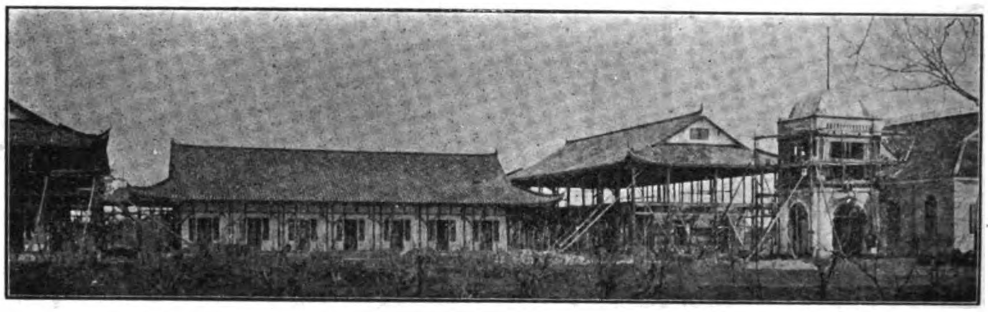
There will be ample accommodations for foreigners, and the length of the exposition, six months, is an attractive feature. The Shanghai and Nanking Railroad will run special trains direct without stops from Shanghai to Nanking, a distance of about 200 miles. At Nanking and near the exposition grounds two hotels are being put up, which will be managed by the Astor House and the Palace Hotel managements of Shanghai.

A large number of foreign firms in Shanghai have taken space in the Building of Foreign Exhibits, Machinery Transportation and others, and later on when the buildings are completed and the exhibits in place, the FAR EASTERN REVIEW will publish further illustrations and descriptions.

MACHINERY AND TRANSPORTATION BUILDING

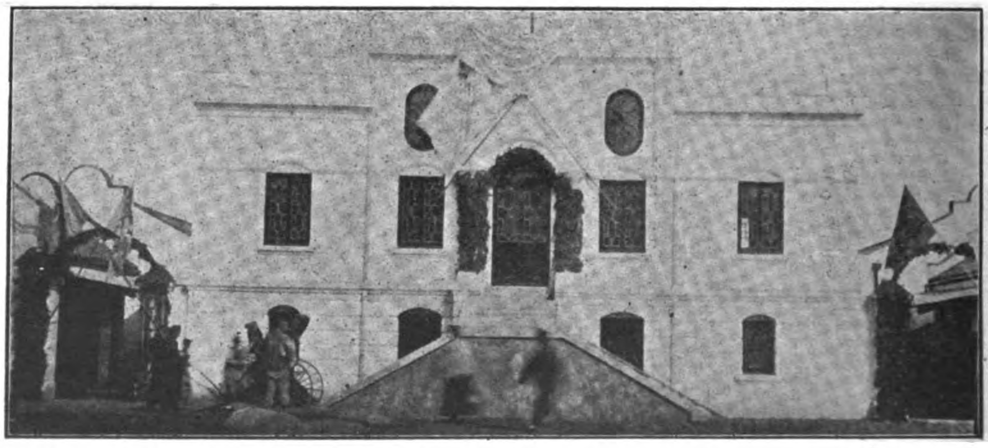


FOREIGN EXHIBITS BUILDINGS



CHINESE BAZAAR

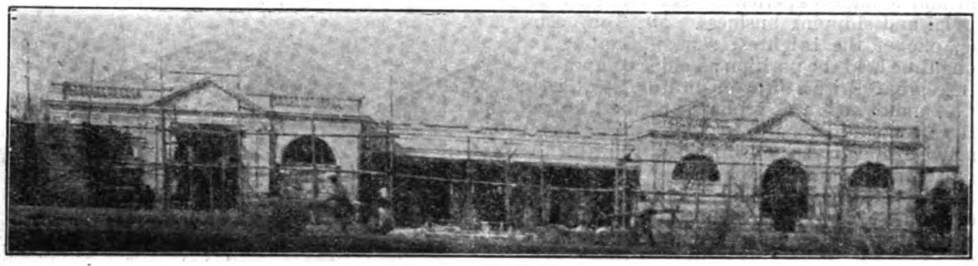
CHINESE ARMS AND MUNITIONS OF WAR BUILDING



ADMINISTRATION BUILDING

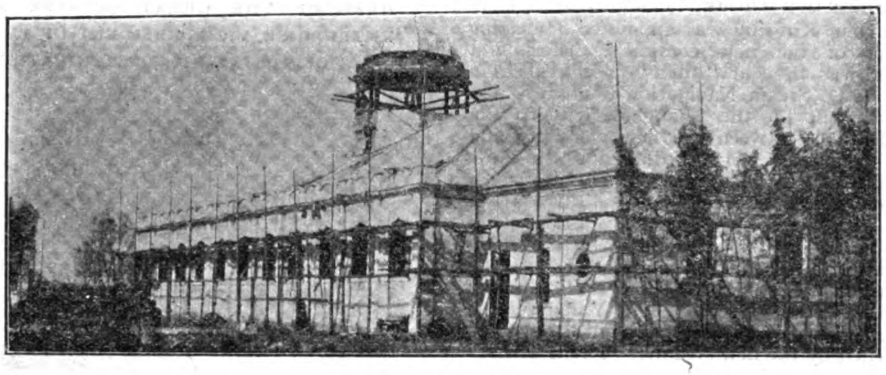
Mr. GEORGE MOOSER
DIRECTOR OF AMUSEMENTS

EMERGENCY HOSPITAL



AMERICAN AND GERMAN EXHIBITS

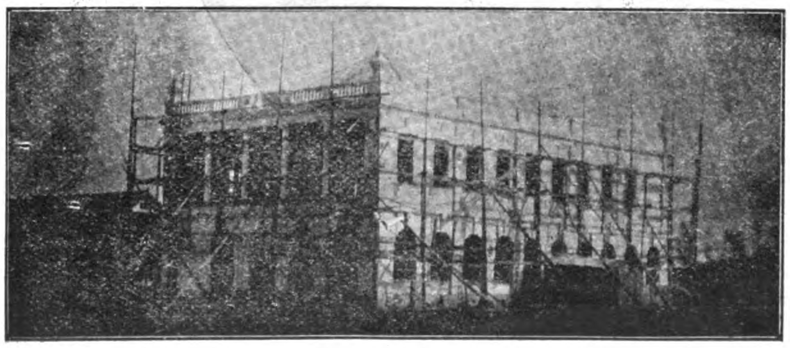
Mr. CHANG, BUILDING DIRECTOR, AND Mr. SEE KEE, INSURANCE DIRECTOR



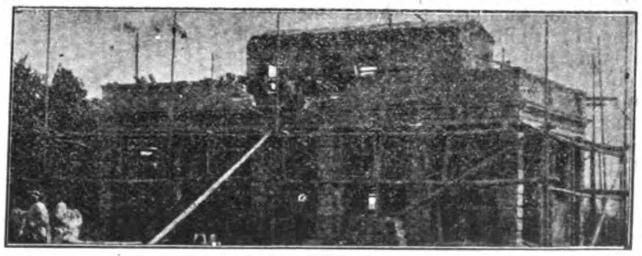
PUBLIC HALL

TAOTAI U. K. CHANG, DIRECTOR BUREAU OF FOREIGN AFFAIRS, NANKING, AND TAO-TAI NEN, INTERPRETER TO THE VICEROY

AGRICULTURAL BUILDING



BUILDING OF FINE ARTS



CHINA MUTUAL LIFE INSURANCE BUILDING

THE CHINA MERCHANTS' STEAM NAVIGATION CO.

THE NUCLEUS OF CHINA'S MERCHANT MARINE

The plan of the Chinese government to organize and build a new navy in the next few years directs attention to its existing merchant marine which is covered to a large extent by the steamers of the China Merchants' Steam Navigation Co. This organization is the largest and strongest enterprise in China, and stands in intimate relationship to the Central Government, in fact, although nominally a private stock company, it is in reality an official enterprise controlled by the Government. Like many other successful Chinese industrial undertakings, this company was initiated by an enterprising merchant who had a large experience with foreign commercial and shipping business. Mr. Tong Kin-sing, one of the brightest sons of Canton, for a long time held the position as chief compradore to the great British firm of Jardine, Matheson & Co., and as such was probably the best known and esteemed merchant in China. The great coastwise and riverine shipping trade of the Empire was then monopolized by foreign bottoms, and although native junks carried their share of the cheapest cargo, the profits of the foreign steamers were large and the business most attractive. Mr. Tong saw the opening for a purely Chinese steamship enterprise, which would cater to and receive the support of his countrymen and have the added advantage of entering ports unopened to foreign bottoms. This was in 1875, and Mr. Tong, in company with Mr. Chu Yu-Chee, soon raised Tls. 1,000,000 to capitalize this venture.

Mr. Tong Kin-sing was appointed Managing Director of the new company. Their first steamer was the old "Aden" purchased from the P. & O. Steam Navigation Company, and this was put on the Shanghai-Tientsin run. The relations between the new company and the officials were very cordial, and the Government granted it the use of the transport Kong-chi for three years, and shortly afterwards the steamers "Fu-sing," "Lue-yuen" and "Yung-ching" were added to the fleet. Mr. Tong had the controlling interest in the river steamers "Tung-ting" and "Yung-ning," and these were placed on the Yangtsze run between Shanghai and Hankow until they were superseded by the new steamers "Kiang Kwan" and "Kiangyung" built expressly for this traffic. In 1875, the "Fengshun" and "Pautah" were constructed, and for many years they were the best equipped and most comfortable steamers on the Shanghai-Chefoo-Tientsin run. Other steamers were added to the fleet in rapid succession, and on March 1, 1877, the company purchased the entire fleet of 17 vessels and the other property of the Shanghai Steam Navigation Co. of which the old American firm of Russell & Co. were the agents and managers. This transaction was effected with the sanction of the Imperial Government, under the patronage of Li Hung-Chang, then Viceroy of Chihli and Superintendent of Northern Trade. Of the steamers taken over from the American Company several were condemned and broken up, and the others renovated and brought up to date. The success of the enterprise was assured from the start, and it is not to be wondered at that Mr. Tong found ample scope for the exercise of his business powers in other important ventures. In 1878, under his direction and initiative, the Kaiping coal mines were first opened, and to his efforts a large measure of credit is due for the construction of the first railway in North China. Working in conjunction with the most powerful and wealthy viceroy of the Empire, Mr. Tong made great strides in introducing foreign business methods in China. In fact he may rightly lay claim to the distinction of being the first modern Captain of Industry in the Empire. When the Steamship Company was first organized about 75 per cent of the shares were held by Chinese merchants, but from time to time the wealthy officials bought up the stock until now they control as large an interest in the company as did the merchants formerly, and from this fact the undertaking, while preserving its commercial nature, has come to be considered as a purely governmental department under the direction of the Board of Posts and Communications. After the death of Tong Kin-sing, the Taotai of Chefoo, Sheng Hsuan-huai, acquired a large share in the control of the Company, and as he was elevated in official rank to the post of Customs Taotai of Tientsin, the mantle of Tong fell on his shoulders, and nearly all of the great development schemes in China of the last twenty years have been carried out under Sheng's direction. Of Sheng it may be truthfully said that he compares more than favorably with some of the world's greatest captains of industry. In addition to having supreme control of the China Merchants' Steam Navigation Company, he was the first Director of the Telegraph Administration, and then Director General of Railways. Under his administration of this post, the Pekin-Hankow, Canton-Hankow, Chengtai, Peinlo, and Shanghai-Nanking railway loan agreements were signed and the roads built and placed in operation. And under his management the great Hanyang Iron and Steel Works, Tayeh Iron Mines and Pinghsiang collieries and railway have been built up and brought into profitable operation under one management. Many honors have been bestowed on him by his government, and, for a time, H. E. Sheng was undoubtedly the most influential official in the Empire. Up to the death of his father some four years ago, Sheng wielded absolute control over the largest industrial and railway enterprises of the empire, and to-day although in retirement his guiding hand is still felt in the management of their affairs On his retirement from the manage-

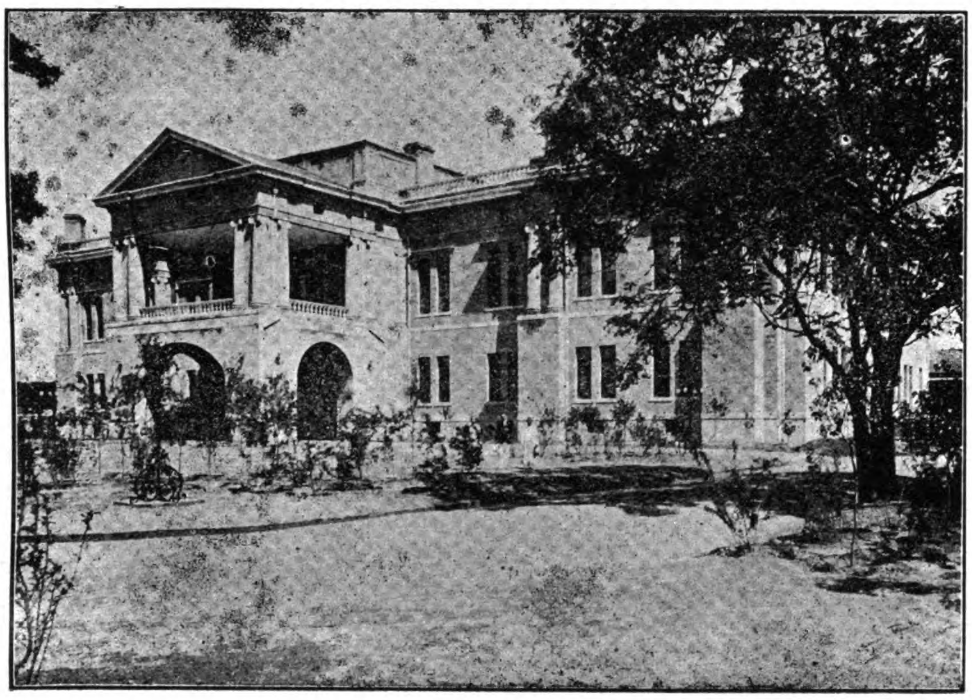
H. E. SHENG HSUAN-HUAI
(SHENG KUNG PAO)

HEAD OF THE GREAT CHINESE SHIPPING ENTERPRISE, VICE PRESIDENT OF THE BOARD OF POSTS AND COMMUNICATIONS

HIS EXCELLENCY TAOTAI CHUNG MUN YEW

MANAGING DIRECTOR OF THE CHINA MERCHANTS' STEAM NAVIGATION COMPANY AT SHANGHAI AND OF THE SHANGHAI-NANKING RAILWAY

ment of the China Merchants' Steam Navigation Company, his choice for a successor fell on one of the most progressive and enlightened men of the Empire, a graduate of Yale University, and one with a high reputation for integrity and ability. Taotai Chung Mun Yew is a name well-known and admired by all foreigners and especially Americans, and the bearer of it holds a high place in the esteem of all who have come in contact with him since his first appearance at Yale in the early eighties. As coxswain of the Yale eight, and secretary of the Chinese Legation at Washington for more than ten years, he has many friends now high in American public life. Although essentially a diplomat whose high qualifications should be utilized by his government at this time when men of his calibre are scarce, his grasp of commercial affairs makes him in every sense a worthy successor to Sheng Kung-pao in the management of the huge official shipping enterprise. In addition to the responsibility of directing this great business, he is also the Managing Director of the Imperial Shanghai-Nanking Railway, where he represents the interests of his government, while leaving the practical supervision of operation to the foreign General Manager, Mr. A. U. Pope. Under the management of Taotai M. Y. Chung, the affairs of the China Merchants' have prospered, and ambitious schemes are projected for the future development of the enterprise. Additional steamers have been added from time to time since the purchase of Russell & Co.'s fleet, and new lines opened until all the open ports in China are included in the service of the company. The service was for a time extended from the Chinese ports to include Singapore, Penang, Honolulu and San Francisco, besides sending a steamer on a trial trip to London. The fleet at present consists of 31 steamers with an aggregate of 59,332 tons, and 39,700 horsepower. The company also owns a fleet of tugs and lighters at Tientsin and on the Yangtsze river. At a rough estimate their property is valued at about Tls. 25,000,000 of which Tls. 13,000,000 is represented by wharves, godowns, offices, etc., on land, and the balance as the value of the steamers. The headquarters of the Company has always been in Shanghai, where they have one of the finest buildings facing the Bund. Other large and valuable properties are located at Chingking, Ichang, Hankow, Kiukiang, Chinkiang, Wuhu, Nanking, Ningpo, Wenchow, Amoy, Swatow, Foochow, Hongkong, Canton, Chefoo, Tientsin and Newchwang. Although the Company have had a very prosperous career, they suffered to some extent during the Boxer troubles, when their manager at Tientsin abandoned the property and fled to save his life, turning the immense property over to Mr. Chas. Denby to protect for them. In the FAR EASTERN REVIEW for March, 1909, there appeared the following remarks about Mr. Denby's part in this episode.



THE NEW WAIWUPU BUILDING AT PEKING

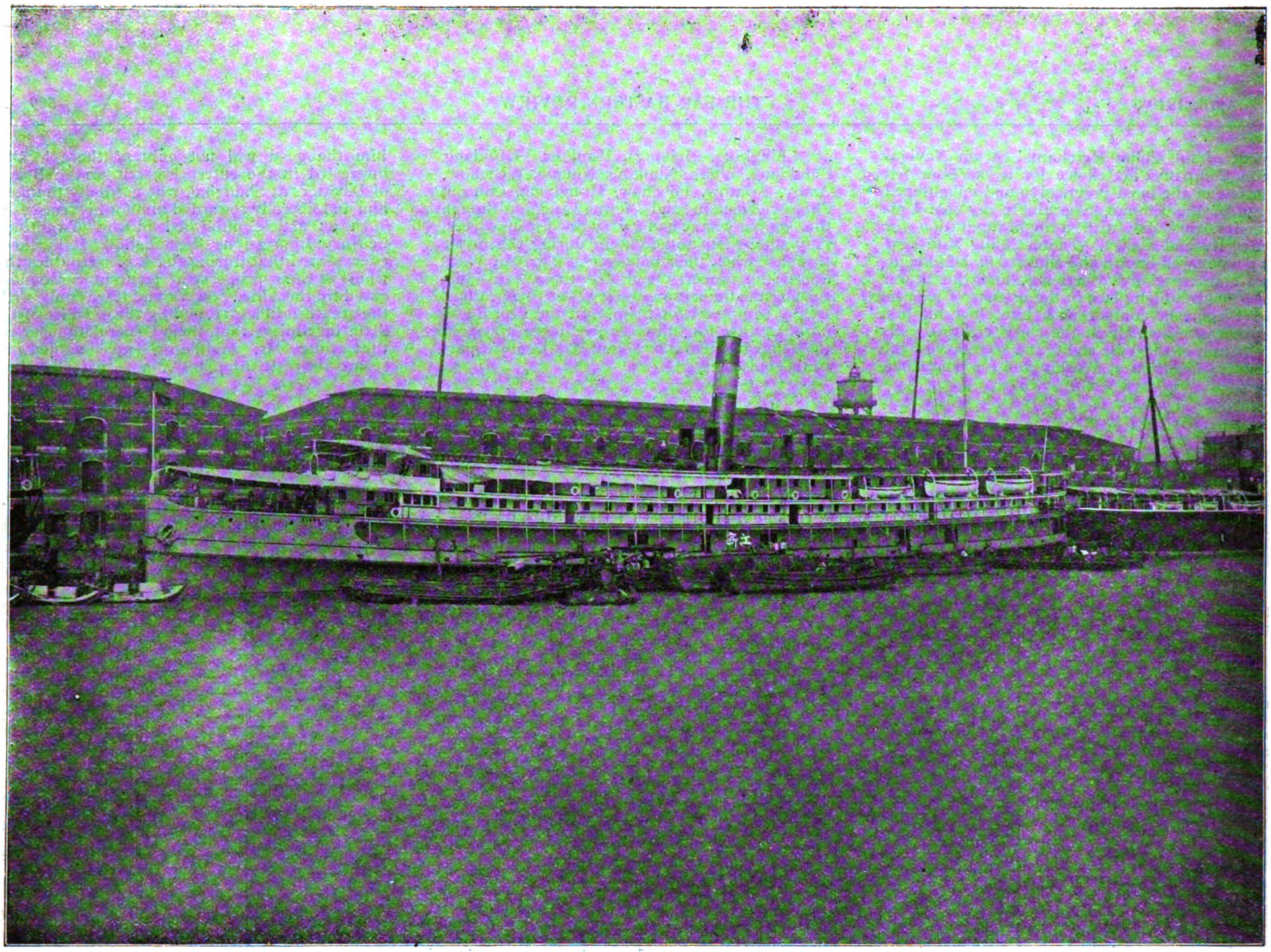
"One of the greatest enterprises in China that was threatened by the disorders of 1900 was the China Merchants' Steam Navigation Company, operating the largest fleet of Chinese owned steamers between Tientsin, Shanghai, Newchwang and other coast ports, and controlling a number of large storage warehouses or godowns at Tientsin and Tongku at the mouth of the Haiho. During the first few days of the shelling of Tientsin by the Imperial forts, and when it looked the blackest for the foreigners, the Director of this company placed all his ships, dwellings and warehouses in Mr. Denby's hands and left him in absolute control of the property, while he himself attempted to escape to Shanghai to save his person.

"One who knows China, and the magnitude and importance of the enterprise concerned, will appreciate that the task which was thus thrust upon Mr. Denby by his Chinese friends was of no small proportions, and his selection for this trust was in itself a high testimonial to his standing and integrity. The immense godowns in Tientsin alone, several in number, were filled with hundreds of thousands of taels worth of grain and various merchandise, and in the condition of lawlessness prevailing at the time, control of the property entrusted to his care was difficult. The Chinese godown keepers and guards deserted their posts; the soldiers of the Allied Powers bent on marauding and foraging had to be restrained, and there was always the constant danger of conflagration to check.

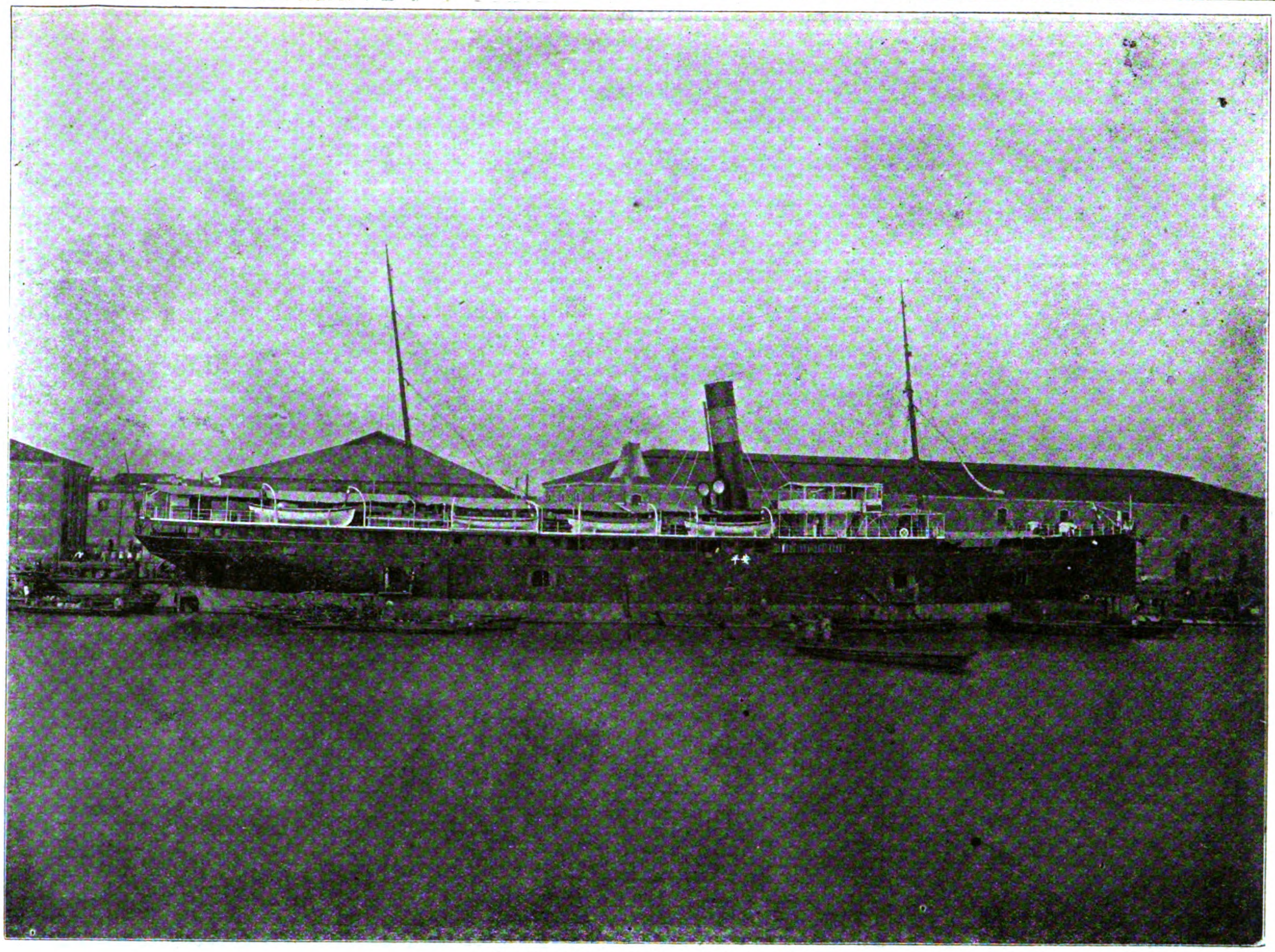
"For over two months Mr. Denby retained control and administration of this immense property, and, on the restoration of peace, turned it over to the foreign agent of the Company designated to receive it. Mr. Denby's attitude and conduct of the business earned for him the good will not only of those locally interested in the enterprise, but of the Board of Directors at Shanghai, who cordially thanked him and liberally rewarded him for his services."

In an article published in the "Twentieth Century Impressions of Shanghai," it is, however, stated that during the Boxer troubles the whole of their property at Tientsin was confiscated by the Allied Powers, and it was only with the greatest difficulty, and by the exercise of no little ingenuity, that their General Manager at that time—Mr. Middleton—was enabled to secure its restitution. For a period of no less than 25 years, terminating in 1907, Mr. Middleton, who had been formerly in the service of Russell & Co., carried on the duties of General Manager of the Company. This feature of retaining the services of experienced and reliable foreign managers of departments, and foreign officers to navigate their fleet, has in a large way been responsible for the remarkable growth and prosperity of the enterprise. The Chinese officials could guarantee to secure and retain the traffic, but they recognized the necessity of having foreign hands to carry out the practical details of operation. And to this hearty co-operation is due its present commanding position, and the example set is one which should be studied and followed by the thoughtless native agitators who believe that they are already sufficient unto themselves to direct any industrial undertaking without the aid of foreign advice."

Having dealt with the origin of the Company, and the extent of their operations, it only remains now to survey the present position, more particularly in Shanghai. Here they possess five large wharves: the Kin-lee-yuen, Central, Lower Hongkew, Eastern, and Yang-kah-du. The last-named wharf, situated at Pootung, is of most recent structure, and possesses about 1,600 feet of river frontage, with unlimited depth of water, and most modern warehouses. Practically the whole of this property, together with the Kin-lee-yuen Wharf, is devoted to the coast trade of the Company's ships. Up to within some six or seven years ago, indeed, the Company gave up all their wharves to the local trade, dealing chiefly with Messrs. Siemssen & Co.'s boats, the Hungon Company's river steamers, and a casual tramp steamer. All this has, however, been altered now to make room for a somewhat different class of work.



S. S. KIANG HSIN OF THE C. M. S. N. CO.



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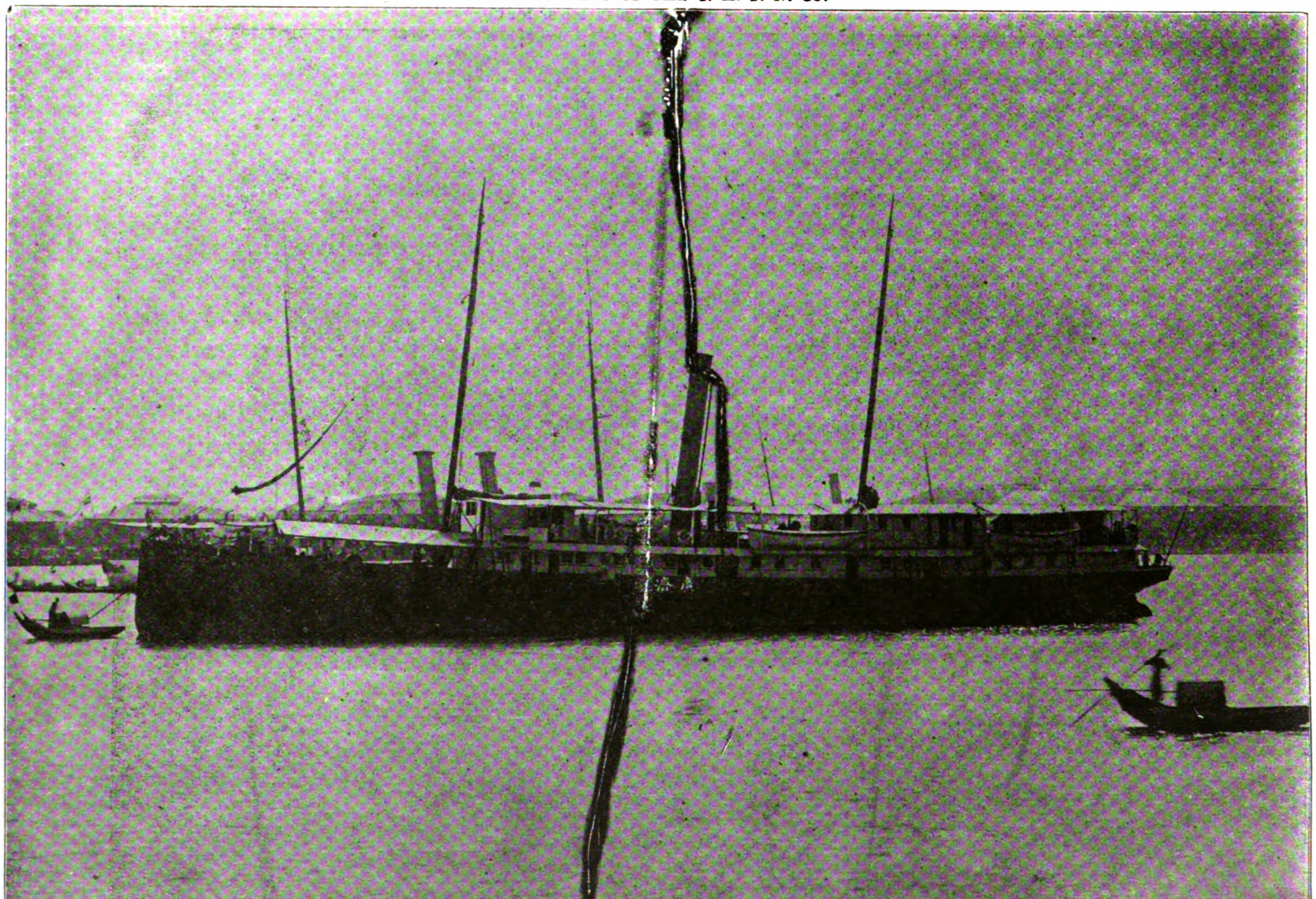

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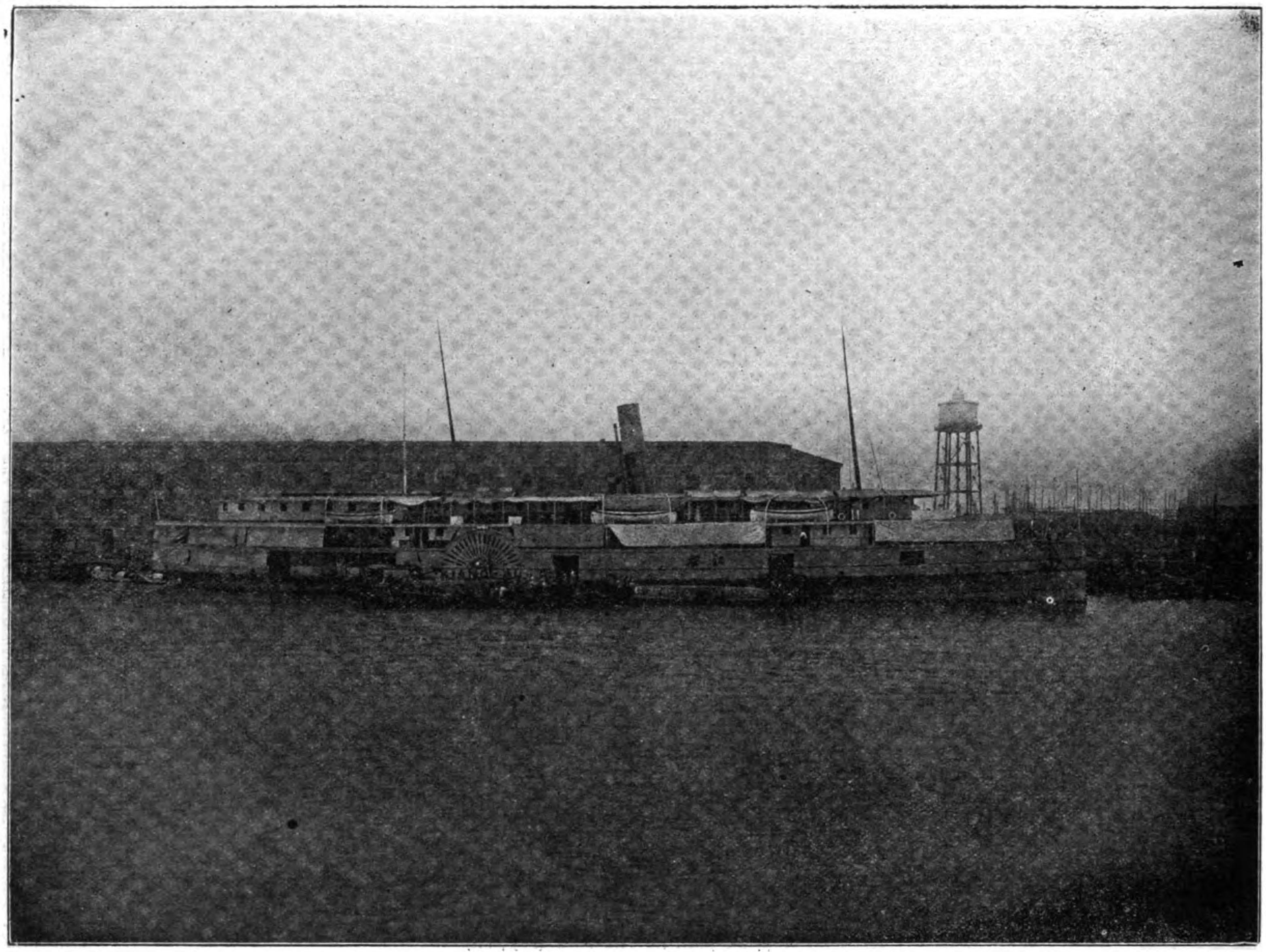

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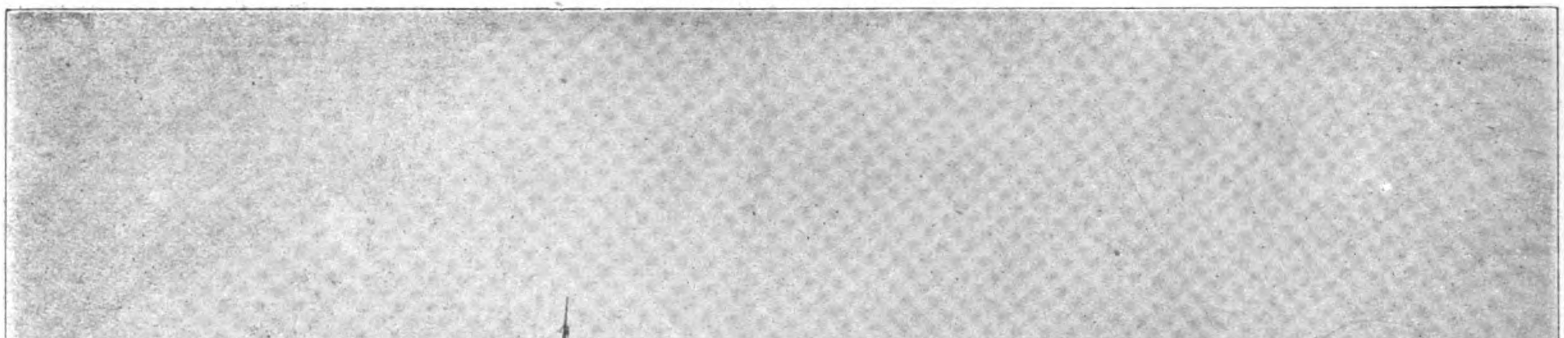

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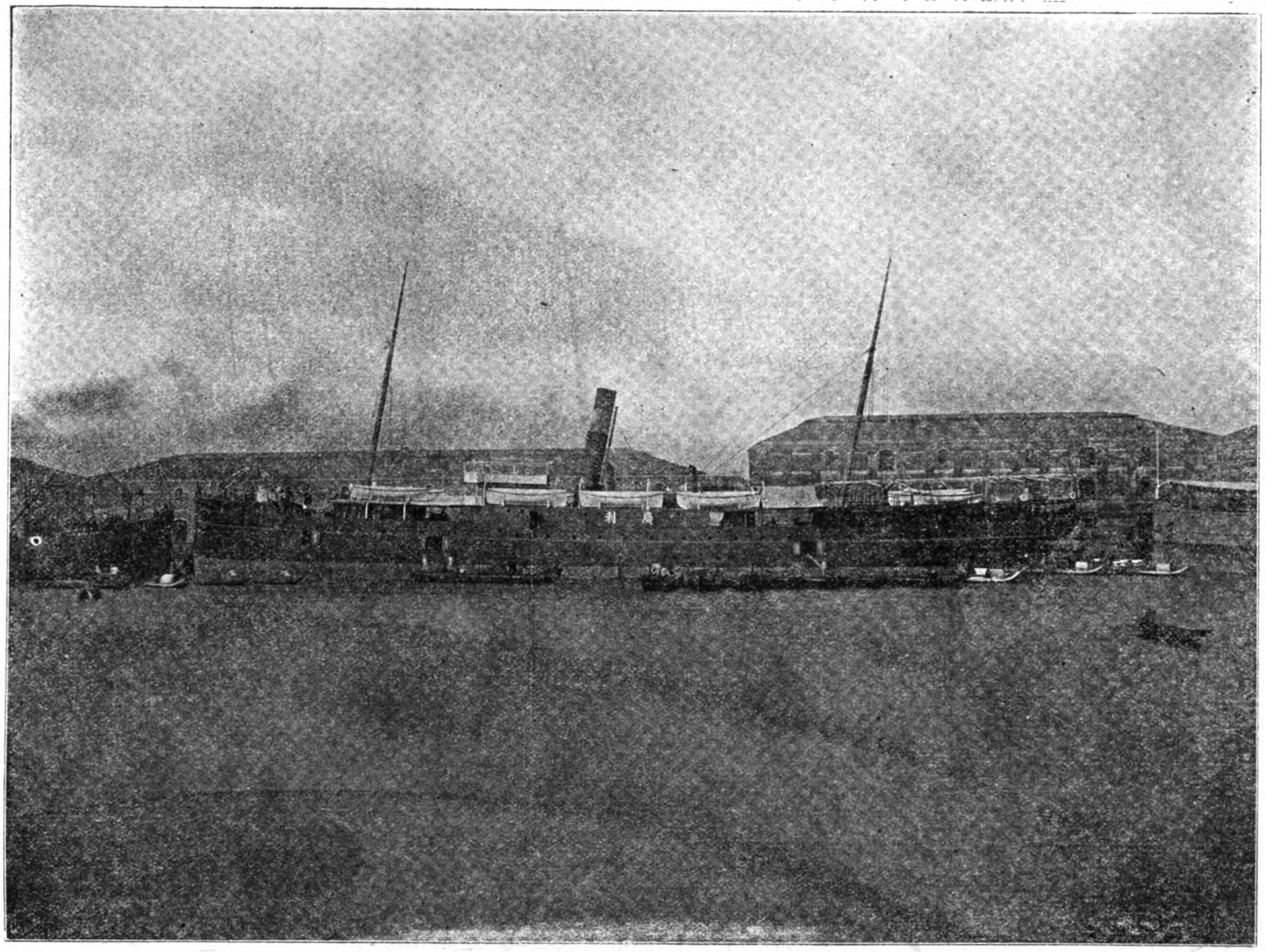

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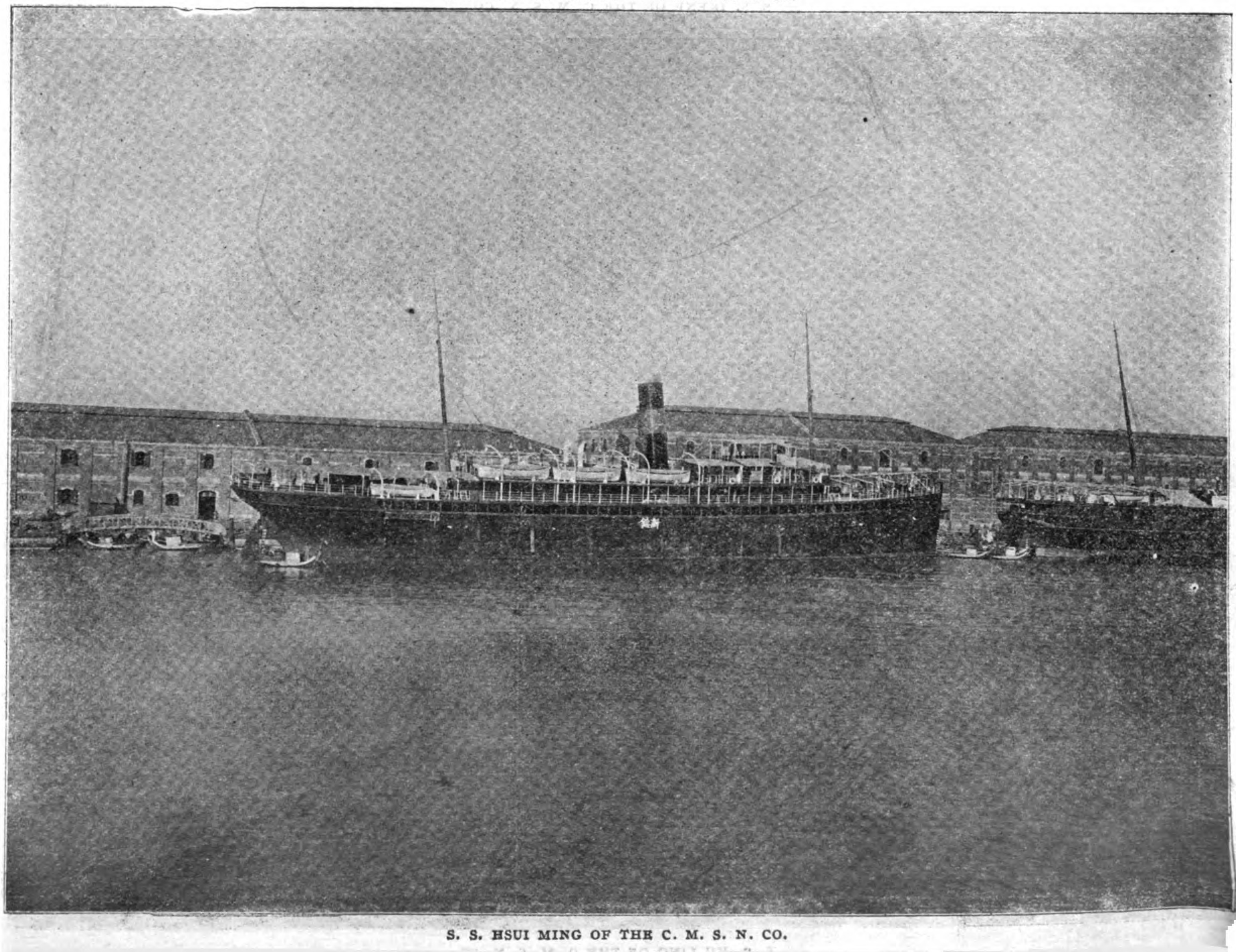
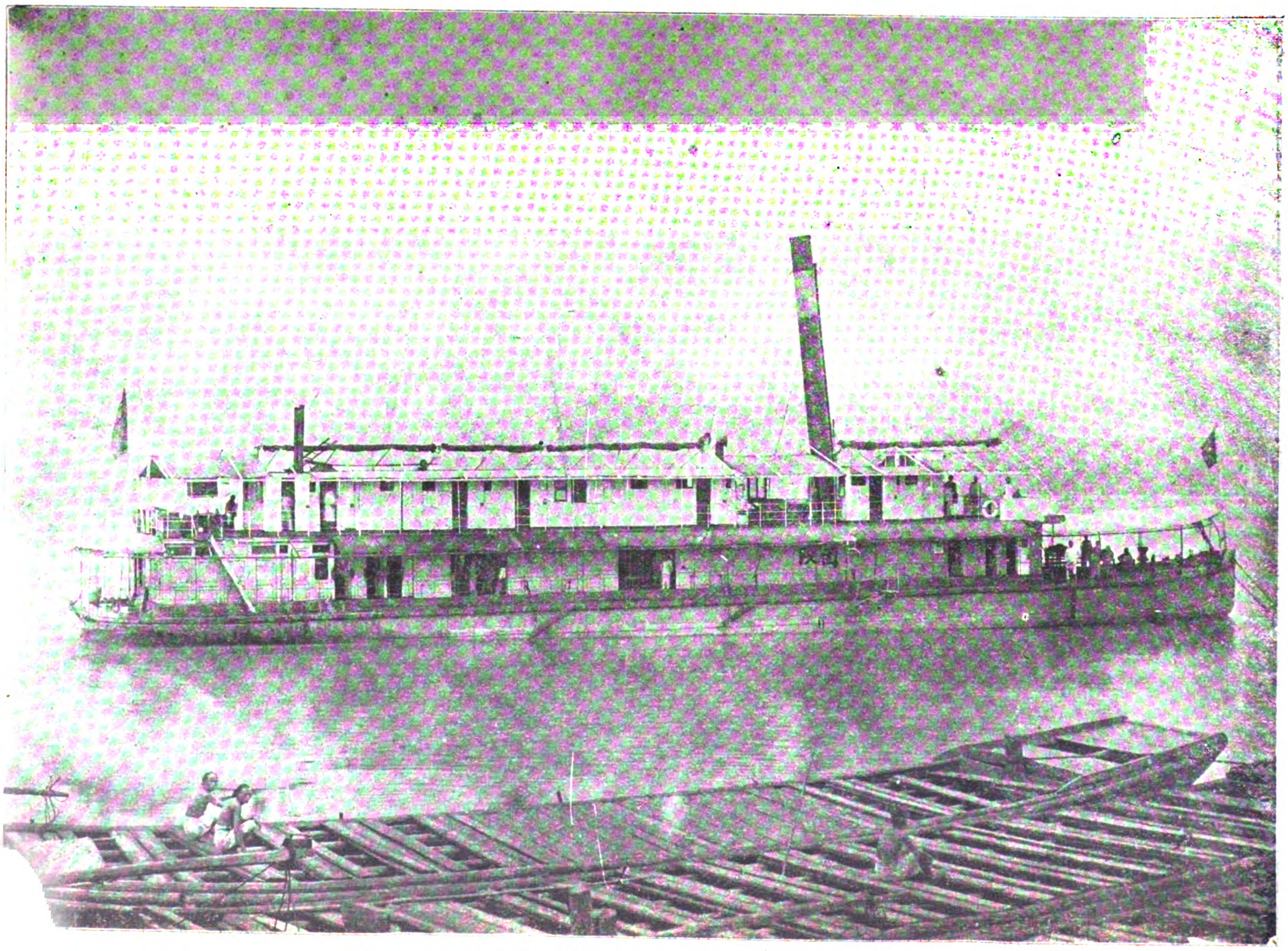


S. S. HSUI MING OF THE C. M. S. N. CO.

S. S. IRENE OF THE C. M. S. N. CO.



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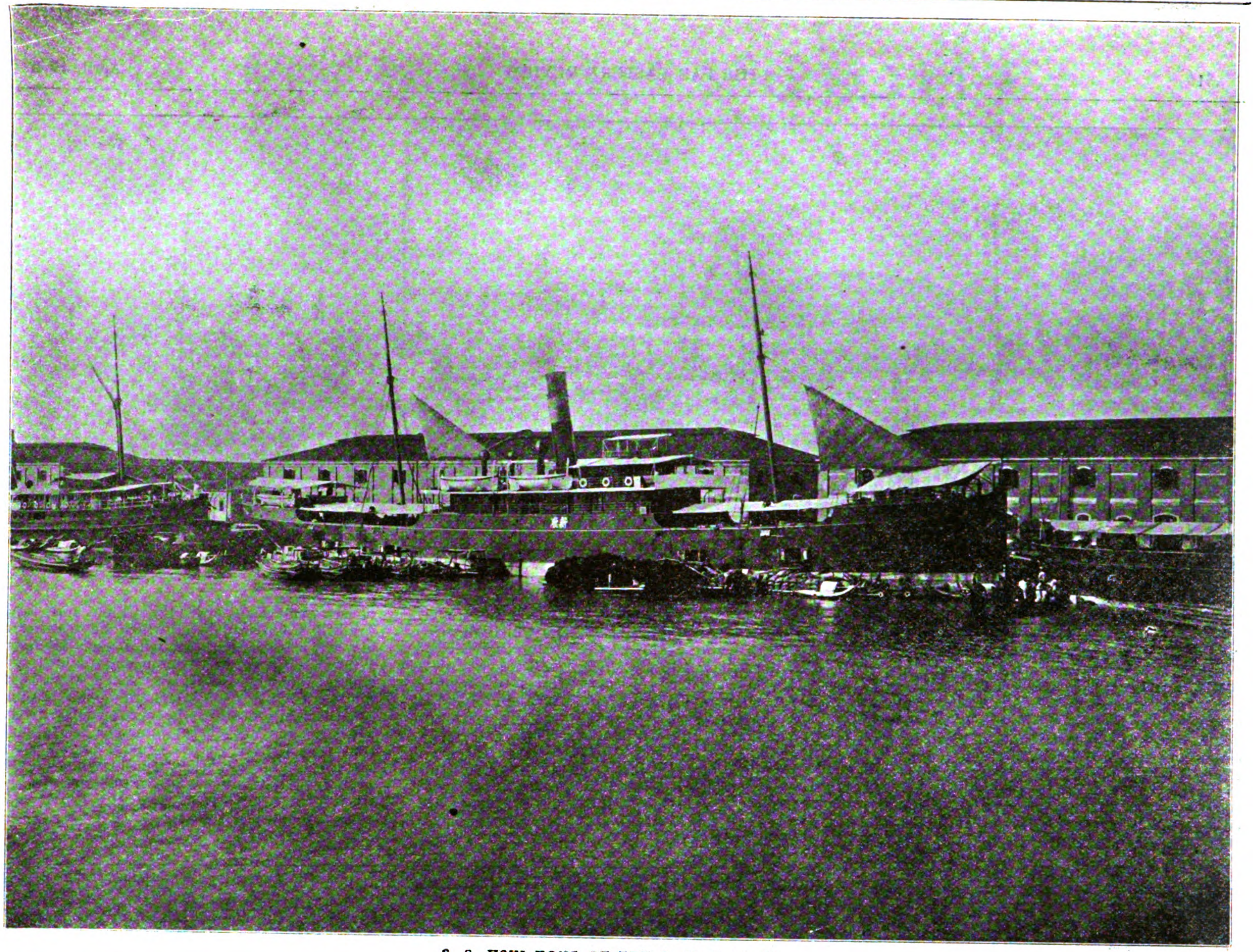

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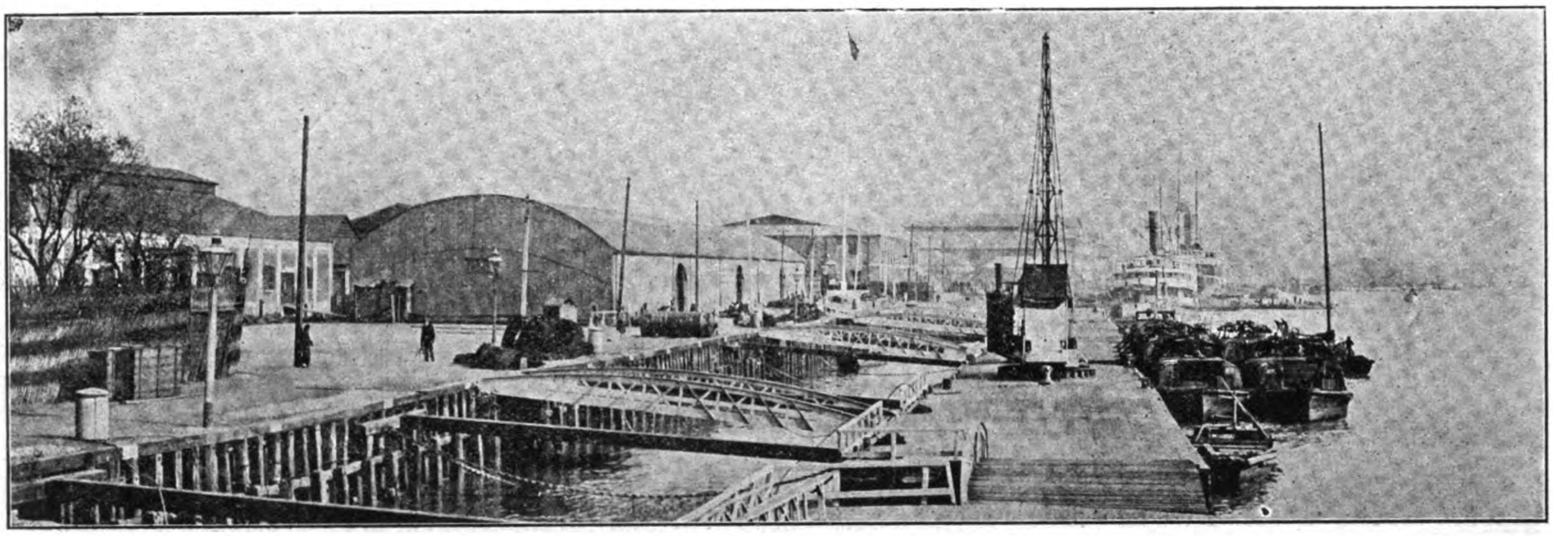
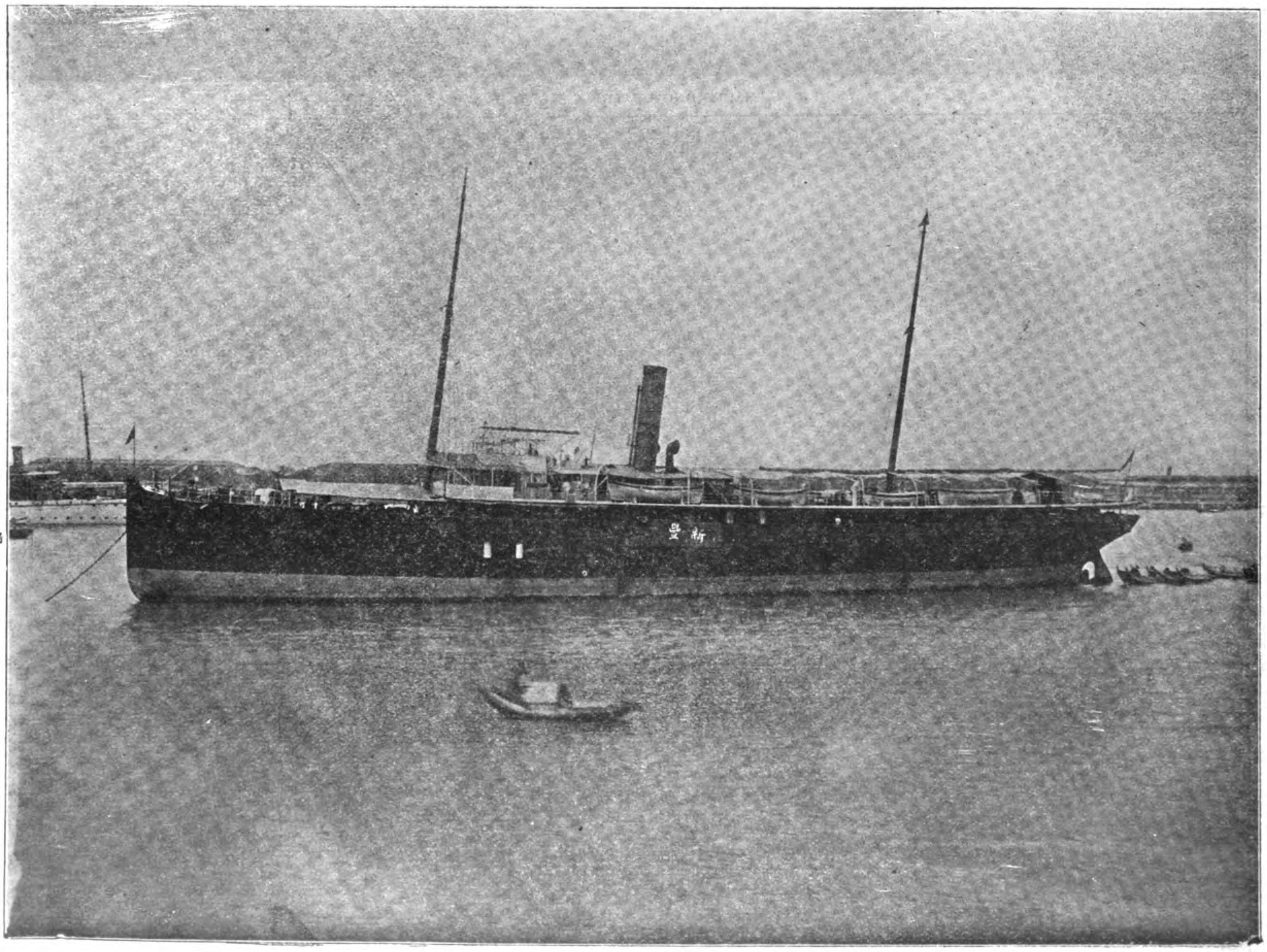


WHARVES AND GODOWNS OF THE CHINA MERCHANTS' STEAM NAVIGATION CO. AT SHANGHAI

Since October, 1907, the Company have been entrusted with the entire business of the Peninsular and Oriental Line, whose steamers are berthed at the Lower, Central and Eastern Wharves, where there is excellent accommodation. The warehouses and river frontage aggregate some 3,000 feet in length, and the depth of water is such that all ships which come over the bar can be berthed there. The Eastern Wharf, particularly, has been the growth of recent years. It was purchased by the Company when the Standard Oil Company, who leased part of the property, acquired a wharf of their own farther down the river. Besides the Peninsular and Oriental steamers, the Company wharf the "Shire" boats, for which Messrs. Shewan, Tomes & Co. are the agents; the "Glen" steamers, operated by Macgregor Bros. & Gow; and do a portion of the business of Messrs. Dodwell & Co., the agents for the "Mogul" Line; the Boston tow boats, and other tramp steamers trading from New York and elsewhere.

Mr. Thomas H. Harris has been the general manager of this department of the Company's interests since October, 1907. He came to Shanghai some twenty-five years ago. For the first five years he was in the employment of the American firm, the China and Japan Trading Company, after which he transferred his services to the Shanghai and Hongkew Wharf Company, with whom he remained, as a general office assistant, for seven years. He first joined the China Merchants as an accountant—a position which he occupied for twelve years, acting as general manager on three or four occasions when the general manager was on leave. It was then considered that the growth of the business warranted the appointment of a sub-manager, and Mr. Harris filled this office until he was promoted to his present responsible position.



S. S. YU SHUN OF THE C. M. S. N. CO.

DYNAMIC FLIGHT

By GEORGE GORDON BLACK

PART 2.—HISTORICAL

(Continued from February)

Theory and principle.

The task of the author on free flight—simple though it may appear—is, in reality, anything but on easy one, partly an account of the meagreness of existing information on the subject and partly also because of the many different types of reader for whom this journal caters. Technicalities are all very well for the purely technical reader, but to the layman they are sadly out of place, and hence the writer finds himself in the difficult position of having to draw a subtle dividing line between the two. It is to be hoped, therefore, that in perusing the following explanations the reader will remember that I am endeavoring to accommodate myself to every point of view and at the same time to discourse on a subject of which little or nothing is really known. There are no engineering ethics of aeronautics at present and, in consequence, much being taken for granted, some of the points herein referred to are matters of opinion and therefore open to dispute.

Of all the troubles that beset the student of aerial navigation perhaps the first and greatest is the difficulty he has in realizing the ability of the air to act as a medium for the transportation of bodies heavier than itself. This idea arises, of course, solely from its invisibility and not from any sense of intangibility because we all know quite well what extraordinary things the wind can do when it blows hard. Trees, houses, human-beings and even locomotives are blown over while no small difficulty is experienced in holding an open umbrella.

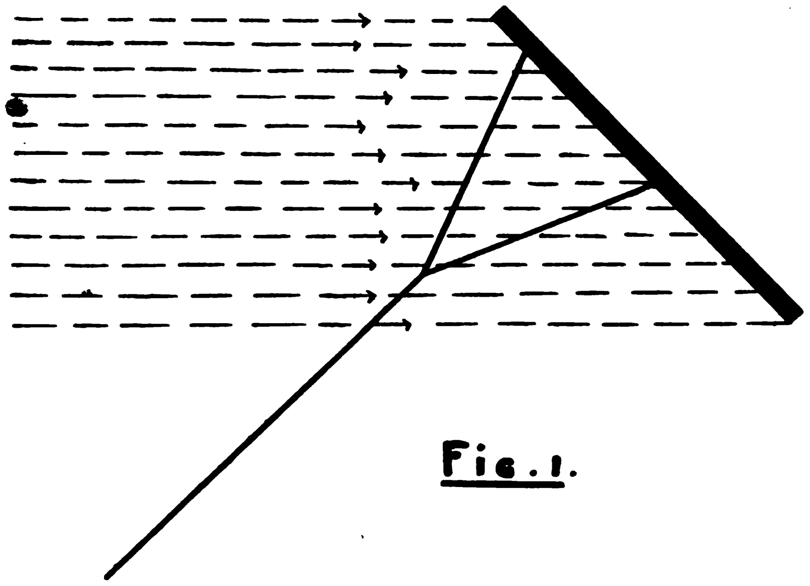


Fig. 1.

It is obvious that in order to porduce such results the air a very must be possessed of considerable amount of force when in motion and that it is also somewhat more "solid" than we generally imagine it to be.

As a matter of fact air weighs exactly 8 lbs. per 200 cubic feet, while its density is 800 times less than that of water. If a blast of air is blown directly against a surface at a speed of 5 miles per hour, it will be found to exert a pressure of .075 lbs. to the square foot. At 20 m. p. h. the pressure is 1.2 lbs. per sq. ft., while at 45 m. p. h. it is 6.075 lbs. per sq. ft.)

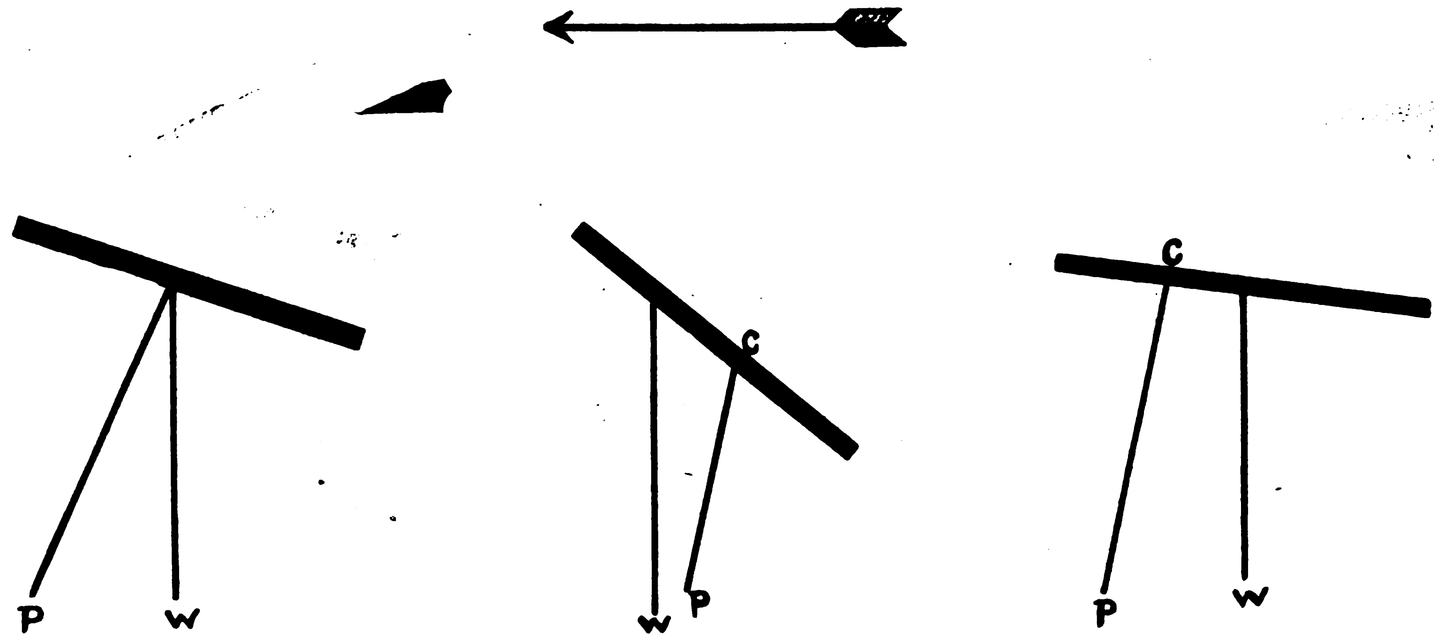
Before we assume, however, that it is possible to apply such a powerful medium to the purposes of travel we must first of all consider its various states and peculiarities as they are likely to affect a vessel capable of being navigated through the upper regions.

The average human-being has been accustomed to imagine that the atmosphere is, to all intents and purposes, a solid strata composed of an invisible fluid—at one time quiescent and at others in more or less violent motion. It never occurs to him, however, that within a very small area it may be moving in all conceivable directions *at the same time* and that the velocity may drop from 30 m. p. h. to zero and back again within the space of half a minute —yet this is exactly what does occur.

The phenomenon of the wind blowing in several directions at the same time is nowhere more clearly noticeable than at sea, where many readers will doubtless have remarked (on calm days) streaks of water that were quite glassy, while the surrounding surface was broken up by tiny waves. Sir Hiran Maxim—who has made a study of this natural curiosity—says, in explanation, that the wind approaches the centre of the glassy zone from two extremely opposite directions and, meeting at that point, ascends in a straight line into the air and again spreads out in different directions at a considerable height.

The same thing is often experienced on land where the air close to the earth's surface is always much warmer than at 30 or 40 miles above it. Columns of warm air are thus constantly rising while cold air is descending to take its place, the action being, of course, analogous to that which occurs in an air-filled chamber heated at the bottom and cooled at the top.

In addition to such upward and downward currents the atmosphere in proximity to the surface of the earth, is considerably affected in its motions by the contour of the ground or by projections from it. For instance, a wind blowing steadily against a cliff or a house will rebound and set up a rolling motion which creates four different currents—forward, backward, upward and downward. This action



KITE BALANCED

FIG. 2.
CENTER OF PRESSURE MOVING BACK
(With acknowledgments to the *Aero Manual)*

CENTER OF PRESSURE MOVING FORWARD

is, of course, multiplied to an indefinite extent by every little irregularity.

The practical effect of these varying draughts on aerial bodies is very pronounced. M. Santos Dumont relates a ballooning experience in an upward current. "I let the balloon come down again," he says, "hoping to find a safe air-current, and when 300 yds. off the ground near the Var, I pulled the valve open and let out more gas. But I could not go down. I glanced at the barometer and saw that I was ascending. I was being lifted by an enormous column of air rushing upward. It became necessary to save all the gas I could and I abandoned the attempt to descend. I was dragged up to a height of 10,000 feet and was compelled to await the course of events."

Much of what was formerly a mystery as regards the ability of birds to soar has been explained by these ascending air columns. Maxim says, in referring to this subject, "But, as a matter of fact, the air in which a bird flies is never stationary, as I propose to show; it is always moving either up or down, and soaring birds, by a very delicate sense of feeling, always take advantage of a rising column. If a bird finds itself in a column of air which is descending, it is necessary for it to work its wings very rapidly in order to prevent a descent to the earth." While in the Pyrenees Maxim frequently watched eagles balancing themselves on ascending currents of air produced by the wind blowing over large masses of rock.

On another occasion—this time at Madrid—he noticed a pair of eagles soar right across a plain without once moving their wings. "These phenomena," he writes, "can only be accounted for on the hypothesis that the birds were able to feel out with their wings on ascending column of air, that the center of this column of air was approximately a straight line running completely across the plain, that they found upward movement more than sufficient to sustain their weight in the air, and that whereas, as relates to the earth, they were not falling at all, they were in reality falling some 4 or 5 miles an hour in the air which supported them."

It is somewhat difficult to account for the extremely rapid changes in the velocity of the wind to which reference has already been made. Attention was first drawn to them by Professor Langley who constructed a very sensitive anemometer to enable records to be taken of the speed and fluctuations of the air during short intervals of time. Experiments with this instrument showed variations of extraordinary apridity such as, for instance, inside one minute from 30 m. p. h. to zero, then to 14 m. p. h. and back again to its former velocity. Full particulars of the tests made by Langley may be found in "Engineering" of July 13th, 1884.

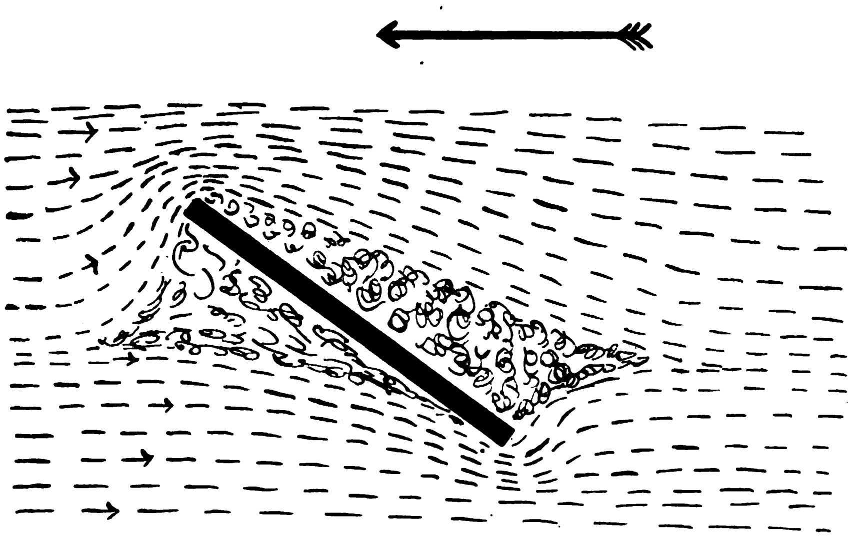


FIG. 3.

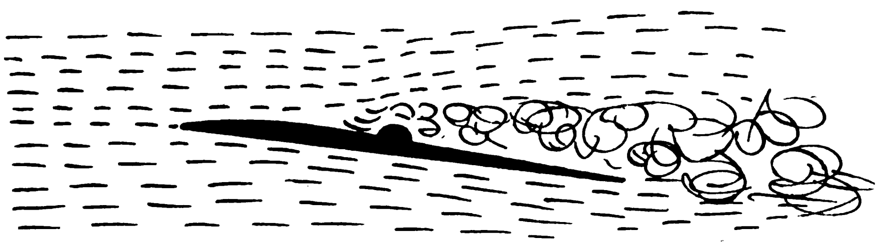


FIG. 6.
DIAGRAMMATIC SKETCH SHOWING EFFECT OF PROJECTIONS ON PLANE SURFACES

FIG. 5.
SHOWING HOW THE AIR PASSES UNDER AND OVER A PROPERLY MADE AEROPLANE WITHOUT CREATING ANY "BACKWASH"

It will be realized from the foregoing that in attempting to utilize a medium subject to such extraordinary vagaries we are grappling with no ordinary mechanical problem. Our difficulties are further increased by the fact that, up to the present, it has not been possible to obtain any practical experience with self-propelled bodies in the air on account of the limitations of those craft that have hitherto been used for aerial purposes. I refer, of course, to balloons—a method of tackling the problem that is so utterly at variance with Nature's pacific methods as to be quite outside the region of practical politics. Writing on this same subject Mr. Massaic Buist says, "From the strictly scientific point of view anything that employs a container filled with a gas lighter than the atmosphere of the earth cannot be considered as any serious attempt towards the solution of the problem of aerial travel, firstly because it implies weight limitation and secondly because bulk and lack of rigidity are diametrically opposed to reliable navigation in such an uncertain element as the air wherein we have everything to learn so far as the negotiation of currents is concerned."

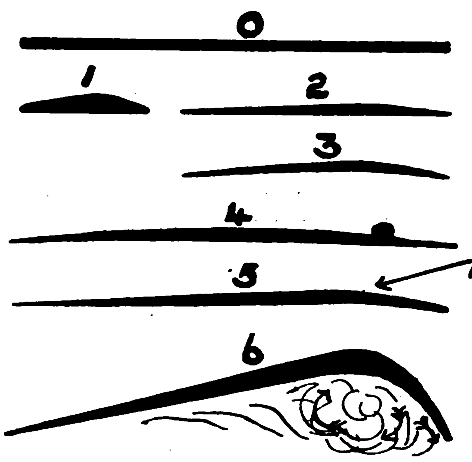


FIG. 4.
PHILLIP'S PLANE EXPERIMENTS.

The only reason why the balloon has hitherto held the field is simply that (until a few years ago) no motor of sufficiently light weight in comparison with power output was available for the propulsion of a machine depending entirely on dynamic energy for its support. As far back as the early part of the nineteenth century heavier than air machines were designed which would undoubtedly have flown had they been provided with a modern aeronautical power plant, but it was left for the motor car to evolve such an engine and, in consequence, the coming of the practical aeroplane has been delayed until our own time. The enormous bulk, extreme weakness and general flimsiness of the balloon are factors militating against its practicability that can never be done away with and, therefore, we cannot seriously regard the balloon as in any way tending to solve the problem of aerial travel.

We are now left face to face with the only other solution—that of imitating the flight of birds. Nature, as we all know, accomplishes this in two ways, i. e. by flapping and soaring, but we may at once dismiss the idea of ever being able to produce mechanical contrivances sufficiently delicate and sensitive to take the place of feathers. A few investigators are, it is true, working on these lines at present, but with very little success. It is difficult, at any rate, to see what object such a machine could have, if it was possible, since the modern soaring machines appear to possess striking advantages on the score of simplicity.

The principle of the soaring aeroplane is based entirely on the supporting power of an air-current blowing against a suitably inclined surface—represented, in its simplest form, by a kite. Reference to Fig. 1 shows that so long as the angle of incidence of the kite relative to the blast blowing against its surface is preserved (in this case by the string) the air in striking the surface will curve down along the face end, passing away underneath, form a bank on which the kite rests. Three forces thus act on the kite:—1st the weight acting at the centre of gravity, 2nd the upward pressure of the wind acting at the centre of pressure and 3rd the downward pull of the string.

In order to preserve the equilibrium these forces required to be balanced—see Fig. 2—for supposing the centre of pressure to move backwards (as would occur if the wind suddenly increased in force) or forwards (if the wind dropped) the kite would tend to turn right over. In the former case what actually happens is that the tail is pushed up and the nose down until the angle of incidence resumes its normal value. When the wind drops the supporting power of the blast is lost and the kite dives to get up speed to create sufficient wind. The centres of pressure and gravity then coincide again and the kite will return to its original position.

It will be noticed, that in the case of the kite, the surface is stationary with the wind blowing against it (its success depending, of course, entirely on the angle of incidence be maintained by means of the string). Supposing, however, instead of the wind blowing against the surface, that the surface is driven through the air at a proper angle it is obvious that a blast will be formed in its passage sufficient to support it.

We know that a kite will lift a very considerable weight of string, etc., and we conclude therefore that there is no reason why its dimensions should not be increased until it can support a power plant and pilot—hence the evolution of the modern aeroplane. The efficiency of such a machine as that just suggested would, however, be very low—in fact it is doubtful if it would fly at all—for certain reasons which may be gathered from the succeeding part of this article.

Mr Horatio Phillips published in 1885 an account of some experiments that he had carried out with a view to finding the most efficient shape of lifting plane. That a perfectly flat surface is a very poor weight carrier is clear when we consider its effect. I give an illustration herewith (Fig. 3) showing exactly what happens when such a plane is being driven through the air and from which it will be seen that a disturbance is created at the back that must necessarily require a considerable amount of power to overcome.

The relative degrees of efficiency of the various shapes of planes tried by Phillips were shown by the amount of "lift" and "drift" recorded—the former representing the upward force and the latter representing the amount of pressure required to overcome the resistance of the plane to progress through the air. From the illustrations and table in Fig. 4 it will be seen that a thick concavo-convex form with a blunt leading edge and a long thin trailing edge (No. 5) gave the highest ratio of lift drift. Curiously enough this particular shape is characteristic of the wings of most birds.

The exact reason why such a form of plane should be so good is not at all clear—in fact various authorities hold entirely different views on the subject. Phillips himself says in a recently published article:—"The greater convexity on top near the leading edge acted in a very peculiar manner, the air that was struck being deflected upwards and causing a partial vacuum over the whole of the upper surface; this vacuum is more pronounced at A (Fig. 4, No. 5). If a small tube were inserted there water would be sucked up through it. This partial vacuum above alluded to reduces the head resistance—in fact exactly balances the resistance caused by the bluntness near the leading edge."

Maxim ascribes its efficiency to the fact that the air passes over both the lower and upper surfaces without resistance and eventually both streams leave the trailing edge of the plane in a direction that is the resultant of the two angles. He says also that the lift is more evenly distributed than with a flat plane.

Various other investigators have given still more different explanations, but until a definite pronouncement on the subject is made it would be futile to discuss it here.

Having decided on the cross-section of the planes there is still the plan form to be considered—that is to say, the proportion of entering edge to the total area of the plane.

Description of form.	Speed of air current. Feet per second.	Speed of air current. Miles per hour.	Dimensions of aeroplanes	Lift. Whole plane ozs.	Lift. Lbs. per sq. ft.	Drift. Whole plane ozs.	Drift. Lbs. per sq. ft.	Lift. Divided by drift.
Plane surfaces...	39	26.59	16"×5"	9	1.013	2	0.225	4.5
Figure 1........	60	40.91	16"×1.25"	9	4.05	0.87	0.392	10.3
Figure 2........	48	32.73	16"×3"	9	1.688	0.87	0.163	10.3
Figure 3........	44	30	16"×3"	9	1.688	0.87	0.163	10.3
Figure 4........	44	30	16"×5"	9	1.013	0.87	0.098	10.3
Figure 5........	39	26.59	16"×5"	9	1.013	0.87	0.098	10.3
Figure 6........	27	18.41	16"×5"	9	1.013	2.25	0.253	4
Rook's wing....	39	26.59	area sq. ft. 0.5	8	1.0	1.0	0.125	8

(To be continued.)

WORLD'S SUGAR PRODUCTION

Various tables of statistics are available covering estimates of sugar production for 1909-10, and quoting from the work of Mr. F. O. Licht on this subject the beet sugar production for the year is estimated at 6,109,000 tons. An estimate is also furnished of the cane sugar from all sources placing it at 8,560,000 tons, in all 14,609,000 tons, while the world's consumption for the same period is placed at 14,659,000 tons. The above are considered conservative figures as later statistics, according to Messrs. Willett & Gray, place the figures at 6,185,000 tons of beet sugar production. The International Association of Statistics places the amount of beet sugar for Europe at 6,061,010 tons.

The following table is submitted by Consul-General Henry W. Deidrich of Antwerp covering the cane sugar statistics for 1908-09 and 1909-10 but with a reservation respecting the accuracy of the estimates regarding the production of the East and West Indies:

	1909-10 Tons.	1908-9 Tons.
Cuba	1,800,000	1,514,000
Porto Rico	270,000	222,000
Haiti and Dominican Republic	60,000	75,000
Jamaica	7,000	5,000
Barbados	30,000	12,000
Trinidad	45,000	41,000
Martinique	36,000	38,000
Lesser Antilles	45,000	40,000
Antigua and St. Kitts	25,000	25,000
Guadeloupe	35,000	25,000
St. Croix	13,000	12,000
Brasil	275,000	280,000
Argentina	130,000	162,000
Peru	130,000	150,000
Venezuela	3,000	3,000
Demerara	100,000	116,000
Surinam	12,000	12,000
Central America	50,000	50,000
Mexico	130,000	115,000
Egypt	45,000	40,000
Natal	54,000	40,000
Mauritius	225,000	188,000
Reunion	45,000	39,000
Fiji Islands	70,000	65,000
Formosa	160,000	121,000
Java	1,150,000	1,187,000
Other East Indies	2,120,000	1,927,000
Queensland	140,000	151,000
New South Wales	15,000	15,000
Philippines	115,000	108,000
Hawaii	475,000	448,000
Louisiana	330,000	320,000
American home-grown beet	420,000	386,000
Total	8,560,000	7,932,000

Continuing further Consul-General Deidrich says:

"Finally, what has become of the world's sugar crop during the past four years; how much of it was left at the end of each year, after satisfying the demands of trade? What the results are likely to be during the present year, ending August, 1910, may be learned from the following table, showing actual returns of the world's sugar trade since 1905:

	1909-10 Tons.	1908-9 Tons.	1907-8 Tons.	1906-7 Tons.	1905-6 Tons.
Initial stock September 1	1,650,000	2,002,000	2,014,000	1,810,000	1,767,000
Production of beet sugar	6,109,000	6,494,000	6,510,000	6,673,000	6,888,000
Production of cane sugar	8,500,000	7,932,000	7,610,000	8,127,000	7,119,000
Total	16,259,000	16,428,000	16,134,000	16,610,000	15,774,000
Balance on hand August 31	1,600,000	1,650,000	2,002,000	2,014,000	1,809,000
World's consumption	14,659,000	14,788,000	14,132,000	14,596,000	13,965,000

"Thus it will be seen that the production of beet sugar has steadily grown less during recent years, while that of the cane has increased to such an extent as not only to cover the shortage in beet sugar but also to add to the market a sufficient quantity to supply the world's demand for sugar, with a limited surplus at the end of the season, scarcely enough to keep the world supplied for six weeks. It also may be interesting to learn the fact that of the average annual world's sugar crop, about two-thirds, or 10,000,000 tons, are used in Europe, the United States, and Canada, while the other third is absorbed by the rest of the world."

In a more recent bulletin Messrs. Willett & Gray announce the visible supply the first week in March in Europe and America at 3,240,026 tons, a decrease of stock compared with the corresponding date last year of 356,605 tons. With stocks afloat considered there is a falling off of 346,605 tons in supply shown by the comparison. This bulletin places the Cuban supply at 1,700,000, a difference of 100,000 from previous estimates.

The statistics as regards the Philippines by Messrs. J. T. Figueras of Iloilo, the principal sugar post of the Philippines, place the crop for 1909-1910 at approximately 100,000 tons, as against 109,866 tons for 1908-09. The

Manila Bulletin, commenting on the sugar situation in the Philippines, says:

"According to the report of Mr. J. T. Figueras, the Iloilo broker, the sugar crop for 1907-8 was 1,437,430 piculs (137½ lbs.) and for 1908-9 the total output was 1,598,053 piculs, while the estimated crop for 1909-10 is 1,549,660 piculs or nearly 50,000 piculs less than for the crop year closed on the 31st of October.

"While the passage of the Payne Bill came too late to affect the 1909-10 crop it is expected that it will have a stimulating effect on the planting for the 1910-11 crop and that the production of sugar will be considerably increased for that year. The estimated crop for 1909-10 is approximately 100,000 tons, or one-third of the quantity which may be admitted to the United States free of duty under the provisions of the Payne Bill.

"This new market for approximately three times our present production should certainly stimulate industry and offer sufficient inducement for the investment of capital for the development of the many thousand hectares of sugar land which has never been planted."

Taking the best statistics available, there is every indication that notwithstanding the steady increase of cane sugar production, it is yet far from meeting the increased demand and covering the shortage of beet sugar. As will be seen by the comparative tables submitted by Mr. Deidrich, the surplus at the end of the year has decreased at the rate of approximately 50.000 tons for the last three years; the cane sugar product has increased 750,000 tons, and during the same pericd beet sugar has fallen off about 400,000 tons.

MACHINE TOOL LUBRICATION

The coming of high speed steels a few years ago necessitated very radical changes in all machine tool design; particularly was this the case with reference to the size of the bearings and methods of lubrication. Larger and better proportioned bearings, with more certain means of lubrication, are to-day a necessity.

Let us consider, as an illustration, the headstock of the engine lathe. A few years ago turning speeds of 25 to 40 feet per minute were the usual practice; to-day much deeper cuts at speeds of anywhere from 50 to 150 feet per minute are common. The increased speed of the lathe spindle is not the only factor to be dealt with—there are greatly increased pressures due to wider belts, to increased tension, and to coarser feeds.

The former headstock, driven by a cone pulley with four or five steps of different diameters, has this driving cone pulley mounted directly on the lathe spindle. Continuous oiling of the bearing of this cone pulley upon the spindle is impossible, and therefore sustained hard service is out of the question with this type of headstock. When running with back gears in there always has been danger of "freezing" the cone pulley to the revolving spindle upon which it is mounted. This construction answered fairly well in the carbon steel days, but is totally inadequate under high speed steel practice. New conditions have altered the whole problem of lubrication.

To meet these changed conditions, the Lodge & Shipley Machine Tool Co., Cincinnati, O., designed a radically different type of lathe drive, known as the "Patent Headstock." This new headstock not only delivers the greater power required to utilize the modern high speed steels at the limit of their efficiency, but also has such complete and positive oiling facilities that high speeds and heavy cuts can be indefinitely sustained.

All bearings of the "Patent Headstock" are positively oiled by sight feed oil cups, whether the back gears are in or out. Thus a copious supply of oil is delivered to each bearing, and oil grooves distribute the oil evenly over the revolving journal. The bearing surfaces themselves are of large area, thus reducing the pressure per square inch so that the oil is not forced out from between the journal and its bearing. Therefore there is always a film of oil preventing metal-to-metal contact between journal and bearing, resulting in minimum fractional resistance, absolutely no danger of "freezing" under most severe service, and practically no wear of the headstock.

FAR EASTERN RAILWAY NEWS

RAILWAYS OF JAPAN.—The Railway Board has issued its report for the year 1908-09 covering the construction and operation of Government and private railways. In all there were 5,726 miles of road in operation, of which all but 517 miles of the South Manchurian Railway Company are narrow gauge. The following are tables taken from the report:

		Miles.
State-owned Roads		4,543
Private-owned Roads		477
South Manchuria.	Broad-gauge	517
	Narrow-gauge	189

TOTAL RAILWAY REVENUES.

	Yen.
Income from Passengers	47,663,074
Income from Goods	46,127,202
Total	93,790,276

GOVERNMENT RAILWAY RECEIPTS AND EXPENDITURES.

	Yen.	Compared with 1907 Yen.
Passenger Receipts	41,868,780	+ 4,294,989
Gocds Receipts	35,735,661	+ 6,432,045
Ships Receipts	1,389,494	+ 553,947
Total	78,993,935	+11,280,981
Gross Earnings	79,821,583	+10,046,422
Operating Expenses.	44,708,436	+ 7,107,694
Net Earnings	35,113,147	+ 2,938,728

The percentage of operating expenses to gross receipts was 53.7 compared with 51.2 per cent. for 1907.

MATERIALS PURCHASED.

	Yen.	Compared with 1907 Yen.
Purchases of articles (domestic)	19,787,600	— 7,661,195
Purchases of articles (foreign)	22,072,597	— 5,858,891
Totals	1,860,197	—13,520,086

GOVERNMENT RAILWAYS CAPITAL ACCOUNT.

	Yen.	Yen.
Capital invested up to the end of 1907		380,347,457
Increase of capital in 1908	374,597,560	
Decrease	1,058,029	
Net Increase	373,539,531	373,539,531
Total capital at the end of 1908.		753,886,988

The above total is subdivided as follows:—

	Yen.
Capital not yet redeemed	655,716,124
Capital already redeemed	61,703,578
Special Capital	36,467,286

The entire length of track operating under the Railway Board at the end of the year was 4,542.9 miles, an increase of 98 miles over the year 1907. The total length of track amounted to 6,432 miles and 50 chains, an increase of 276 miles and the net number of stations were increased from 1,153 to 1,175.

The Railway Accident Association, organized for the protection of employees on the Government Railways and supported by the government, expended approximately yen 390,000 during the year. This association has a membership of 77,842 and the total revenue during the term amounted to yen 644,817, of which yen 252,442 were contributed by the Government and the balance by the men with the exception of yen 23,964 received from money on deposit.

RELIEF STATISTICS.

	Yen.
Relief to wounded persons	123,806
Relief to families of killed	122,633
Expenses of Medical Treatment	115,844
Paid back	26,162
Total	388,445

	Yen.
Number of cases in which relief was given	15,251
Surplus of income over expenditure.	256,362
Brought over from previous year	344,411
Total	600,773

GOVERNMENT ROLLING STOCK.

		Compared with 1907
Locomotives	2,031	+ 107
Imperial carriages	5	— 1
Passenger-cars	5,263	+ 280
Freight-cars	32,568	+ 326

PRIVATE RAILWAYS

In all there are 27 private companies formed to construct and operate railways in Japan, of which 17 have completed their lines and are operating them. Four of these companies have partially constructed and are open in part and six are engaged in construction or have been recently formed with projects under way. The total length of line is placed at 626 miles and 16 chains, while the lines in operation aggregate 477 miles, 5 chains, an increase of mileage compared with the previous year of 31 miles 23 chains. The total capital invested in privately owned railways in Japan amounts to yen 42,845,000 and the cost of construction, represented by yen 4,197,726 for 1908, totals yen 31,580,575.

ROLLING STOCK OF PRIVATE RAILWAYS.

		Compared with 1907
Locomotives	125	+ 14
Passenger-cars	688	+ 11
Baggage-cars	1,477	+ 110

RECEIPTS AND EXPENDITURES.

	Yen.	Compared with 1907 Yen.
Gross Revenue	3,866,992	+178,000
Operating Expenses	2,007,516	+138,071
Net Revenue	1,859,476	+ 48,932

The operating expenses were approximately 52 per cent. of the gross receipts or 1.7 per cent. less than the Government lines for the same period.

The *Japan Mail* gives the following summary of Japan's railways including Formosa:

"The extension of the railway mileage in Japan to 5,000 miles was accomplished in 1906 when the event was celebrated in Nagoya. Remarkable progress has since then been made in railway extension owing to the development of our railways not only in Japan proper, but also in Formosa, Korea, Manchuria and in other places. According to investigations, up to the end of January last the total mileage has now reached 6,731 odd miles. The figures are distributed as follows:—Government lines. Japan proper—3,363.3 miles; Hokkaido—645 miles; Kyushu—567 miles; Shikoku—58.7 miles. Private lines: 414 miles; light railways—50.7 miles. Manchurian lines: broad gauge—517 miles; narrow gauge—189 miles. Formosan line: 271.3 miles. Korean line: broad gauge—641 miles. Karafuto line: 25.3 miles."

WESTERN AND SOUTH AUSTRALIAN TRANS-CONTINENTAL RAILWAY.—The completion of the survey of this proposed line which will connect Kalgoorie in Western Australia to Port Augusta in South Australia, a distance of 1,063 miles, is an important step in the direction of

giving the Australian continent a trans-continental line. The cost of this survey was £20,000 voted by the Federal Government. A correspondent of the *Mining Journal* gives an interesting description of the survey and of the country through which the line will pass. For purposes of survey the gauge of the proposed railway was assumed to be 4 ft. 8.5 inches, the grade one in 80 and a minimum curvature of 20 chains radius. In Western Australia the 462 miles of line were surveyed in 85 days and the end from Port Augusta to Tarcoola in South Australia, a distance of 601 miles, was completed in 292 days. Scarcity of water greatly impeded the work. Much fertile country was crossed; granite and limestone prevailed along the route in many places with table land of sand stone formation and many valleys with good soil and vegetation. Better rainfall would make many of these valleys very productive. It is proposed to establish a daily passenger train, and a freight train from each terminus every other day under present plans. The following estimate of cost is reproduced from the *Journal*:

Estimate of Cost of 1,063 miles of line with a 4-ft. 8.5-in. gauge.

Clearing	£ 16,000
Fencing	8,000
Earthworks	355,000
Bridges and culverts	65,000
Rails and fastenings	1,005,000
Sleepers and ballast	1,019,000
Platelaying	117,000
Water supply	609,000
Station yards (telegraphs, terminal accommodation, shops, and machinery)	335,000
Maintenance for twelve months	63,000
Rolling stock	291,000
Land purchase	5,000
Engineering and supervision	100,000
Total	£3,988,000

STEEL CONTRACT FOR THE SOUTH MANCHURIA RAILWAY.—Messrs. Dorman, Long & Co., Ltd., Middlesborough, Eng., have secured the contract for the supply of 6,000 tons of steel work for the construction of bridges where the South Manchuria Railway is doubling its line from Dairen to Suchiatun. There will be approximately 400 spans ranging from seven to 105 feet in length.

TOKYO-YOKOHAMA RAILWAY.—The Railway Board is considering the advisability of reducing the time of transit on this line from 28 minutes to 18 minutes. It is understood that the Board will add a standard gauge track to the present narrow gauge in order to accomplish this. This means the widening of bridges and roadbed to accommodate the two tracks and the two classes of rolling stock. The decision on the part of the Board would indicate that it is the beginning of a program to include the general widening of the railway gauge to standard under Government control.

KOREAN RAILWAY PROGRAM.—The Diet has approved the construction and operation of a line running across the peninsula from Pyongyang to Gensan, a line from Gensan along the coast to Chyongjin to connect with the Hoiryong road. The balance of the program as recently outlined in the REVIEW is now under consideration. The total Japanese investment in Korean Railways up to this time exceeds yen 75,000,000.

THE KILIN-CHANGCHUN RAILWAY.—The survey of this line was expected completed last month and active work of construction should be under way by this time. In accordance with the terms of agreement which provide that the Chief Engineer and Chief Accountant should be Japanese, it is learned that Mr. Magao has been named for the former position and Mr. Uchigaki of the Mitsui Company to the latter position.

Director Pu is soon to advertise for tenders for the supply of rails. The construction of the roadbed will be let as soon as the route is decided upon. It will be remembered that the Chinese capitalists who proposed to build this line without Japanese assistance ordered about Tls. 500,000 worth of material and now negotiations are under way to have the company take it off their hands. There will be one tunnel approximately 1950 feet in length at Tamen Pass which will take almost two years to bore. A number of large bridges will have to be built, one across the Shih-ma, 470 feet in length, and another across the Itung, 470 feet long. It is expected that the estimates will be submitted this month and construction make some progress.

BRITISH SECTION OF THE KOWLOON-CANTON RAILWAY.—The announcement was made last month by Sir Frederick Lugard, Governor of Hongkong, that the line up to date has cost $4,800,000 in excess of the original estimates. At a meeting of the Legislative Council of Hongkong early this month the sum of $2,100,000 was voted for the construction of the railway for the year 1910. This vote is $300,000 over the published estimates, but was explained necessary on account of the increased expenditure in construction of earthwork and tunnels and permanent way.

The progress of the railway as stated in the report indicated that the British Section will not be opened until July on account of the delay in securing rolling stock and it will be December before the line is completed. The total estimates to date amount to $12,371,495.

PROPOSED IPOH-TRONOH RAILWAY.—Replying to a petition from Ipoh requesting the construction of a railway connecting Ipoh and Lamut via Tronoh, the High Commissioner stated that while he was always ready to extend railway facilities to populous districts, he pointed out that the Kinta District was now served with railway accommodation to Prai and Telok Anson and that the proposed line would serve to deviate at least two-thirds of the traffic from the latter point and would create little additional traffic. This at a cost of two million to build the line and an indefinite amount to bridge the Perak river with the only outcome of reducing the average receipts of the Railway Department and increasing the aggregate railway expenses impressed the High Commissioner that the petition had no virtue to warrant the sacrifice.

THE PEKING-JOHOL RAILWAY.—Advices from Peking are to the effect that the Board of Posts and Communications had decided to postpone the construction of the line to Johol and the one from Chinwangtao to Kuyungkwan for the present and will devote attention particularly to the early completion of the Kalgan-Kobdo line.

ADDITIONAL LOCOMOTIVES AND ROLLING STOCK FOR INDIAN RAILWAYS.—During the quarter ended December 31st, 1909, according to *Railways*, the broad gauge railways erected 73 locomotives, 122 carriages and 1,252 goods vehicles. The metre gauge railways had added 5 locomotives, 60 carriages and 312 good vehicles; and the narrow 2 feet 6-inch gauge railways had erected 12 locomotives, 16 carriages and 55 goods vehicles in the same period. The North-Western State Railway, who work the Kalka-Simla, are arranging for the provision of four additional bogie carriages to meet the increased traffic and demand for new stock. These four carriages are to be of a composite type, combining a first class compartment with a luggage compartment and brakevan.

THE ANDERSON FOUNDRY COMPANY, LIMITED.—The well-known manufacturers of fencing materials, etc., have in hand a large order for the supply of points and crossings for permanent way to the Bengal-Nagpur Railway. Messrs. William Beardmore and Company, Limited, Parkhead Forge Rolling Mills and Steel Works, Glasgow, are supplying the same railway with 124 pairs of wheels and steel axles for rolling-stock; and Messrs Cammel, Laird and Company, Victoria Street. London, 250 steel tyres at their Cyclops Steel and Iron Works, Sheffield. Messrs. H. Pooley and Son, Limited, the well-known old English manufacturers of weighing machines, are constructing a 70-ton weighbridge for the Bengal-Nagpur Railway, which will probably be shipped to Calcutta next month (March 1910). The Indian Railway Board has sanctioned the following estimates for the year 1910-11:

Five tenders for locomotives for the meter gauge section of the South Indian Railway.

A revised design for combined metre gauge goods brake vans and horse boxes for adoption on the South Indian Railway.

A new design for 2′ 6″ gauge four-wheeled open goods wagons required for His Highness the Gaekwar of Baroda's Dabhoi Railway.

The provision in 1910-1911 of two new broad gauge locomotive engines standard gauge type to replace two old engines on the Oudh and Rohilkhand Railway.

The provision of four additional bogie carriages (composite first-class and luggage and brake van combined) for the Kalka-Simla Railway.

The provision of eighteen additional bogie coaching vehicles required for working the Coonoor-Ootacamund extension of the Nilgiri Railway.

The renewal of a large number of vehicles on the metre gauge section of the Madras and Southern Mahratta Railway during the year 1910.

The provision of fourteen additional bogie composite first and second class carriages required for the North-Western State Railway.

The replacement on the East Indian Railway during the year 1910 of twenty-three old tank locomotive engines and fifteen old locomotive tenders by twenty-three new locomotive tank engines.

The provision of sixty-four wheeled fruit vans on the North-Western State Railway in lieu of thirty bogie fruit vans which were previously authorized.

The provision of twenty wagons required for the use of the East Indian Railway Stores Department.

The provision of two 10-ton travelling cranes with two support wagons for the Madras and Southern Mahratta Railway.

The provision of three additional covered carriage trucks for use on the North-Western State Railway.

The provision of fifty more iron covered goods wagons for the Oudh and Rohilkhand State Railway making a total of 200 such wagons which are to be constructed in India.

The provision of fifty open low-sided wagons on the North-Western State Railway which are required for working the Sutlej Valley Railway.

The provision of ten additional oil tank wagons required for the bulk oil traffic on the North Western Railway.

The conversion of 120 high sided goods wagons on the Oudh and Rohilkhand State Railway into covered wagons in order to make them suitable for general traffic.

THE SIAM ROYAL RAILWAYS.—There are now 320 kilometers of earthwork under construction on the Royal Southern Railway says the *Bangkok Times*:—Work at Singora has been delayed about a month owing to the exceptional rainfall. At Trang and south from Petchaburi no trouble has been experienced through the abnormal weather.

The abutments of the bridge crossing the Petchaburi river are finished, and the first consignment of rails is on board the E. A. Co.'s *Pangan*, due in Bangkok within a few days. The *Pangan* also discharged one thousand tons of rails for Trang at Penang and the remainder, three hundred and fifty tons, come on to Bangkok and are intended for Petchaburi. Consignments of rails will in future be brought out by the East Asiatic Co.'s monthly boats, some going to Singora and Candon. The erection of the screw pile wharves in the inner harbor at Singora and in the river at Trang are proceeding satisfactorily.

Surveying work is also going on steadily, Nai Chin Suriwongse is surveying between Cha Ahm and Koh Lak, and Mr. Forsyth Martin is at work from Tung Song south to Patalung. Phra Ramphai will take charge of the construction of the Singora branch line next month.

Mr. Ammon, formerly on the Northern Line, returns to Bangkok this month and will join

the R. S. R., and Mr. Goetz, on return from leave in June, will also join this service.

There is some talk of improving the harbor at Singora by constructing a breakwater from Koh Ngu.

THE JOHORE RAILWAY.—Reports from the Johore Railway are to the effect that the work of reconstruction is going along apace and it will be reopened to traffic much earlier than anticipated. Engineers working on construction in Pahang were directed to reinforce the staff on the repair work. It is understood that the reports of the damage from floods were not seriously exaggerated.

RUSSIAN AND JAPANESE TRAFFIC AGREEMENT.—The *Japan Official Gazette* has published the results of the conference held by the commissioners in relation to through traffic overland and the *Japan Mail* publishes the following translation of a table covering rates between Shimbashi via Dairen and Shimbashi via Vladivostock as far as Manjuri:

From Shimbashi via Dairen (wagon de lit and food excluded).

	1st Class. (Special train).	1st Class. (Ordinary train).	2nd Class.	3rd Class.
	Yen.	*Yen.*	*Yen.*	*Yen.*
Manjuri..........	152.30	124.40	70.15	41.45
Tsitsihar.........	112.90	98.15	53.75	31.65
Harbin..........	97.40	87.85	47.20	27.07

From Shimbashi via Vladivostock.

Manjuri..........	149.85	113.60	69.30	35.55
Tsitsihar.........	110.50	87.35	52.90	25.75
Harbin..........	94.75	76.85	46.35	21.80

KIRIN-HOIRYONG RAILWAY.—It is now announced that the main line of this proposed construction will be postponed until 1913. The reason given is that it will take the intervening period to construct the connecting line in Manchuria, the Kilin Changchun, and the Cyonjin-Hoiryong in Korea. The line in Korea is about 50 miles in length and now consists of a military road constructed during the war as a temporary measure and cars are pushed along the track. It is expected that the Kilin-Chungchun line will be completed by the end of 1912.

CHINESE RAILWAY LOANS.—Judging from the contradictory reports from Peking, little progress seems to have been made with regard to the Canton-Hankow-Szechuan Loan, and the announcement was made at Peking about March 26th, that a member of the Board of Posts and Communications had suggested the best way to solve the Hupeh loan problem would be to borrow the money necessary to construct the Szechuen-Hankow Railway first, and later take up the Canton-Hankow loan after the subject was well threshed out with the Hupeh shareholders. In the meantime the agitation in Hupeh against the loan is very acute. The Viceroy, the Provincial Council, the student bodies and the representatives of Hupeh at Peking are firing in protests against the loan and urging the construction by local capital. The prospect for raising money locally, however, is not so bright as the many prospecti flying around might indicate. In the excitement attending the anti-foreign demonstrations millions of dollars were subscribed, but so far as can be learned only about $30,000 have been realized in cash in all the clamor. Then the foreign capitalists are not agreed as to the manner of dividing the loan. The latest news available is to the effect that France, Germany and the United States have agreed on the substance of a final suggestion to be made to Great Britain with a view to a removal of the latter's objection to a division of the loan among the four nationalities. Then again on March 26th comes a report from Peking that the four powers concerned had urged a conclusion of the loan agreement and the French Minister is reported to have said in an interview that both the Foreign Office at Peking, and the Board of Posts and Communications had approved on the basis of a report by Liang-Shi-yi to the effect that there is no fund subscribed by the natives. This same dispatch states that another moon would see the loan placed.

THE SZECHUAN RAILROAD LOAN AND THE STATE DEPARTMENT

(From *the Wall Street Journal.*)

Under the above caption, with the following striking sub-heads, viz., "Secretary of State Turned Negotiations Over to Morgan & Co. and Ignored Macy-Hawley Syndicate Claims," "Their Representative Secured the Original Promise for American Participation from the Chinese Government," "America's Claim Based on this Promise," "China Investment and Construction Co. Claims Right to Negotiate Loan," "State Department Refuses Privilege," the *Wall Street Journal* of February 15, 1910, publishes the following:

"During the consideration of the Diplomatic and Consular Appropriation Bill in the House of Representatives on Friday last, the work and management of the State Department under Secretary Knox was severely criticized.

"Referring to the Chinese Railroad loan, in reply to a statement made by Chairman Perkins of the Committee on Foreign Affairs that the success of American bankers in obtaining participation in this loan was an evidence of the good effect of Mr. Knox's course, the question was asked whether it was not a fact that the American share in that loan had been obtained by bankers in New York, known as the 'money trust,' to the exclusion of other bankers who had been unable to secure a share in it.

"Mr. Perkins replied that he was in ignorance about that phase of the matter, but the fact remained that a portion of the loan had come to the United States.

"According to the records and correspondence bearing upon this loan and the negotiations prior and subsequent to the State Department's claim for participation, which are all on file in the Department of State at Washington, the facts in the case are as follows:

"American participation in this loan was secured as a result of representations made by the present Secretary of State to the Chinese Government when it became known that the Chinese were negotiating for the construction of the Hankow-Szechuan Railroad with English, German and French interests.

"Secretary Knox turned the financial negotiations over to and advised the syndicate of Wall Street bankers, headed by J. P. Morgan and Co., to put in a claim for participation, at the same time ignoring the claim of the China Investment and Construction Co. which had secured the original promise from the Chinese Government for an American half participation in this loan concession, should it ever be necessary to employ foreign capital in the construction of this line.

"This promise was contained in Prince Ching's Red Note of July 18, 1904, replying to the application of the China Investment and Construction Co. for a loan concession for a railroad to run from Hankow westward into the province of Szechuan. It was upon this promise that Secretary Knox based his claim for American participation.

"Members of the China Investment and Construction Co. syndicate have severely criticized Secretary Knox for favoring the Morgan syndicate and assert that, in the reopening of the concession, the Department of State has exerted its influence for the benefit of another syndicate which had no previous connection with the matter; that it has turned the benefits thereof over to a group of New York bankers entirely foreign to this business and furthermore has excluded from the benefits of participation the syndicate which had devoted a large amount of both time and money in obtaining this concession and had created the situation which gave the chief basis for the State Department's successful demands for participation.

"The only basis for intervention on the part of the American Government in connection with this concession is contained in the Red Note of Prince Ching to Minister Conger upon which the Department has relied. This note was the result of negotiations initiated by the China Investment and Construction Co., to which company the promise of the Chinese Government was made.

"The State Department, it is understood, offers in justification of its attitude in turning the negotiations over to the Morgan syndicate the assertion that only the strongest of financial interests could handle a loan of this character, involving as it will future operations which will run into hundreds of millions of dollars. For this reason it considers the China Investment Co. has not the necessary financial backing.

Members of the syndicate representing the China Investment and Construction Co. have called Secretary Knox's attention to the fact that the personnel of the syndicate, including as it does men of large commercial and financial interests, establishes beyond a doubt its ability and fitness to handle a concession of this character and that its adequacy thereto has been officially accepted by the Chinese Government. Furthermore that it has the strongest financial backing and is prepared to satisfy the State Department of its ability to handle the American share of this loan. That no facts justify its exclusion from participation in this concession and that it stands ready to handle it in its entirety, or, if the public interest demands, to permit other strong interests to equitably participate with it therein.

"The Morgan syndicate, backed by the State Department, has all along assumed the attitude that the China Investment Co. had no right to consideration in this concession and has gone ahead with the negotiations on this basis. The Hunan gentry, however, when they learned that Morgan interests were conducting the present negotiations, threatened a rebellion if the loan was made without their revision.

"These gentry, representing the titled landowners, were the ones who felt the burden of raising the $6,750,000 with which the Chinese bought back from the old Brice syndicate, for which J. P. Morgan conducted the negotiations, the concession for the Hankow-Canton Railway. This sum was paid for 32 miles of line already constructed and about 50 miles of earthwork. For this reason it is said the gentry are much opposed to Morgan participating in any other concession in their territory.

"It is understood that $2,500,000 of the present loan of $30,000,000 is to be applied to reimbursing these gentry for a part of the profits they were compelled to pay to the Morgan syndicate and further that the present negotiations will include provisions for a subsequent loan of $25 000,000 with which to complete this Hankow-Canton line.

"For this reason both of the financial interests involved in the present controversy are loath to let this opportunity, involving as it does immense profits in both bankers and merchants' commissions, slip through their fingers. The estimated profits from the American share of the Hankow-Szechuan loan will amount to about $700,000.

"Under terms of the Conger agreement with the Chinese Government American interests are entitled to a one-half participation in the Hankow-Szechuan loan and for this reason members of the Macy-Hawley syndicate feel that Secretary Knox should have stood out for the full American rights, rather than the smaller participation of one-quarter interest which has been agreed upon in the negotiations with other nations involved.

"In the middle of January a settlement had been arranged upon this basis, by which England, France, Germany and America were each to receive a one-quarter interest or $7,500,000. China, however, has not consented to this arrangement and it is not probable that its consent will be given to any deal which will ignore the China Investment and Construction Co. syndicate to which it is committed, and toward which the Chinese Government and particularly the Hunan gentry profess a very friendly feeling."

THE AMERICAN GROUP

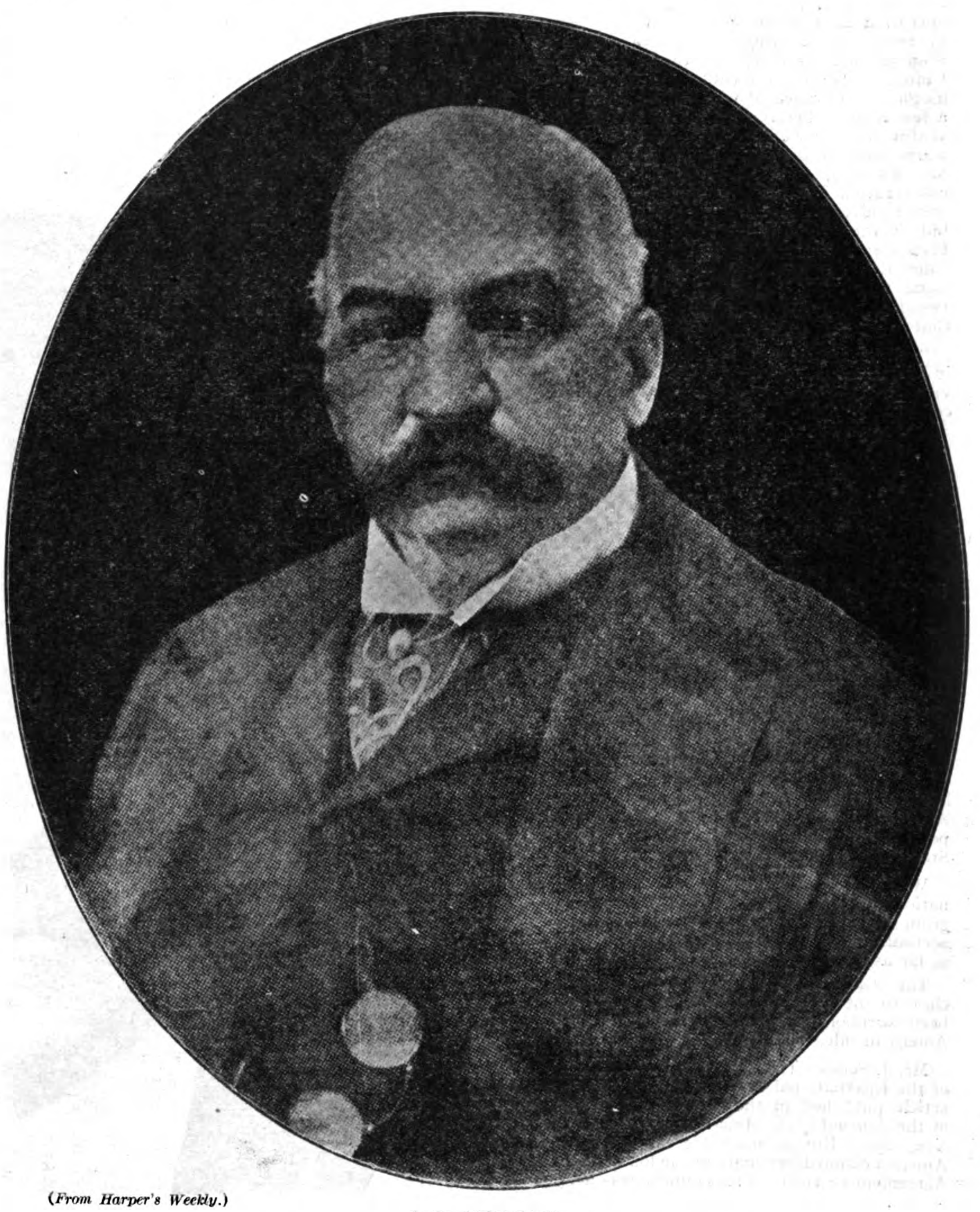
Shanghai, April 1st, 1910.—The article reprinted on another page from the *Wall Street Journal* in connection with the speech of Gen. Thos. H. Hubbard at the last Annual Meeting of the American Asiatic Association, reveals a feeling of dissatisfaction amongst some American financiers to the government's selection of J. P. Morgan & Co. to represent America in the participation of Chinese railway loans. As long ago as September 20, 1909, Gen. Hubbard said in his speech:

"I prefer to look upon the recent action of the United States in reference to the railroad loan that has been mentioned as an act of a corporation. It certainly is the reverse of the action of the United States by its State Department, as that action has heretofore been molded. The United States, whether as a corporation or not, has asked China to borrow money from America. I think I do not put the proposition too bluntly: it has asked China to borrow money from some Americans. Of course when the agent for a lender proposes to a borrower that he shall borrow from his client, he must give assurance that the client has the money to lend and is a party fit to be dealt with. That difficulty, I take it, has occurred to the United States, or to the State Department, in the negotiations so recent and still unfinished for the present railway loan. If the United States is to guarantee or to assure to China the strength of the lenders, it must have lenders on whom it can rely. It was forced, I take it, to make a selection of such lenders. The selection, if one had to be made, could not have been better. The parties selected are of the highest financial strength and responsibility. But let us hope that the selection of some does not exclude all others, and let us hope that those who have for years been working in the East to develop commercial relations between the two countries will not be disappointed by the present selection. I am afraid some of them feel so.

"In respect to its treatment of its own citizens, it ought to be actuated by the rules that it enforces against others. As a corporation it ought not to exempt itself from any rule that it enforces against other corporations. It ought not to countenance monopolies; it ought not to give special privileges; it ought to do equal and exact justice to all. In respect to China and the treatment it received from the United States and from other nations, two texts always come into my mind. One is, 'The Assyrian came down like the wolf on the fold.' It seems to me that has been the guiding principle of many nations in dealing with China n the past. The other is from a higher authority, 'And if ye lend to them of whom ye hope to receive, what thank have ye? For sinners also lend to sinners to receive as much again. But love ye your enemies and do good and lend, hoping for nothing again, and your reward shall be great and ye shall be of the children of the Highest, for He is kind to the unthankful and to the evil.' Commerce and banking have not accepted that text as the rule of conduct, but fair dealing, open speech, adherence to promises, whether in writing or verbal, those are an approach to it, and if they are followed between the United States and China, our relations should be, and certainly will be, increased and improved. But if we follow the course of the Assyrian we shall, soon or late, meet the Assyrian's fate."

From Gen. Hubbard's viewpoint as the head of the International Banking Corporation, he is perhaps justified in displaying some disappointment that his institution was passed over and others selected to support the American programme in China. But this should not be accepted as a lack of appreciation on the part of the government or his countrymen to the services rendered by the International Bank in furthering American trade in the Orient. This bank has received the full confidence and support of the government whenever, purely banking business was to be considered, being appointed the official depository for the funds of the Chinese Indemnity and the Philippine government. The Bank has contributed its share in facilitating American trade relations with the Orient, and in return is entitled to every support the government and American merchants can extend to it. For years it has been on the ground, and while the present Far Eastern policy of the Administration was still undefined, it had taken the initial steps to participate in the Canton-Hankow Railway loan. It was due largely to the failure of the International Bank to secure recognition from the British group that fixed America's determination to enter the field. There has been so much said in regard to the manner in which American participation was secured in the recent loan negotiations that, for the sake of a better understanding, a few incidents will bear repetition. In the East, amongst certain circles the idea is encouraged that America elbowed its way in where it was not wanted, and the delay in the loan negotiations is attributed to this unceremonious and unexpected action on their part Americans are accused of waiting until all the hard work was terminated, and then demanding their share of the "pie." The story is current in Shanghai that when Mr. Straight, the representative of the American group, arrived in Peking and met Mr. Bland of the British group, he is reported to have said, "Well, now that you fellows have raked the chestnut out of the fire, why, I'll just step in and take a bite." These words, spoken with the ludicrous nasal twang some Europeans delight in attributing to all Americans, may be accepted as the current idea of the latter's entrance into the field, and quite naturally a spirit of resentment against Americans has resulted.

The only answer to this must come from the other side, and, at the risk of appearing tiresome, we republish an extract from the correspondence of *The Times*, by Mr. Valentine Chirol, its foreign editor.



(From Harper's Weekly.)

J. P. MORGAN

HEAD OF THE GREAT BANKING FIRM OF J. P. MORGAN & CO.

"Some attempts have been made in this country to traverse the statements made in a message which I sent from Ottawa (*The Times*, July 29), on my way home from the Far East, with regard to the unceremonious rejection by the British group of the first overtures for co-operation made by American financiers as far back as the beginning of April. In so far as my message disclosed a material fact, which the group controlled by the Hongkong and Shanghai Bank had hitherto withheld, it may no doubt have caused some perturbation in interested quarters. But it was none the less accurate. On April 2, the American Banking Corporation, addressing the British and Chinese Corporation, formally proposed American co-operation in Chinese loans, and proposed it in terms which clearly suggested that such proposal was agreeable to the policy of the United States Government. The manager of its Shanghai branch, it was stated, had already, a few months before, prepared the ground by visiting Peking where his mission had had the warm support of the United States Minister, Mr. Rockhill, and the prospect of American co-operation in Chinese loans had been favorably received not only by the Chinese officials, but by the representatives of both British and French interests. The only response, however, which the American Banking Corporation's proposal now elicited was a curt reply of about two lines from the British group, intimating that it could not be entertained.

"Why the British group should have deemed it necessary to dismiss such overtures at the very moment when the somewhat stormy conferences held in Paris in the beginning of April last disclosed the far-reaching nature of German pretensions is a matter which still awaits explanations, for, as far as the growth of anti-British irritation amongst the American public is concerned, that may well have been the *fons et origo mali*. If the resentment of German methods which the British group at the time professed was anything more than stage-thunder, any suggestion of American participation would, one would think, have been welcomed as a make weight to German ascendency in the tri-partite combination.

"What is even more incomprehensible is that the British group, who were entirely dependent upon the support of the British Government at Peking and never hesitated to invoke that support, should have left the Foreign Office in ignorance of such important developments as the American proposal and their rejection of it, more especially as the letter of the influential American bank so clearly foreshadowed the possibility of official support from the United States Government."

While Mr. Chirol criticizes the action of his nationals, he throws the blame on the German group, but the latter strenuously denied his accusation. This point is, however, immaterial as far as Americans are concerned.

This statement may be considered as adhering close to the facts of the case, for it has since been corroborated by similar evidence from the American side.

Mr. J. Selwyn Tait, the Washington Manager of the International Banking Corporation, in an article published in the February, 1910, issue of the *Journal of the American Asiatic Association*, says: "Europe made a great outcry when America claimed her share in the loan under the Agreement of 1903. This country was accused of having allowed European countries to do all the hard work and then at the last moment of having claimed a share in the reward of their efforts. It is, however, very clearly established that in reality this country was first in the field for this particular loan, and that instead of having refused to co-operate with Europe in those loans as was contended, a prominent American international banking company had on three separate occasions between January and April, 1909, pointed out to British banking interests that it would be agreeable to China and itself to have American and British capital work together in China, and that on each occasion the co-operation was declined by Great Britain, although German and French co-operation was availed of shortly afterwards."

This evidence from two opposite authorities should effectively dispose of the prevalent idea concerning American methods. While we are on this subject it may be furthermore pointed out that America is also accused of having delayed the negotiations by insisting on participation, and at the same time it has been stated that the opposition of the Hupeh gentry to the loan was due to the re-entrance of the firm of J. P. Morgan & Co. into the field. In the East for several months it was believed that the real opposition arose from the Hupeh gentry, who desired to build the road with their own money and were threatening Peking with all kinds of calamities if their request was not granted. A Reuter press dispatch of March 10th to its Far Eastern clients, however, informed us that "Telegrams from Washington announced that the Assistant Secretary of State, Mr. H. Wilson, has intimated that France, Germany and the United States have agreed to make a final suggestion to Great Britain with a view to the removal of Great Britain's objections to a division among the four countries of the Central China Railway Loan of £6,000,000."

And in the February issue of the *Journal of the American Asiatic Association*, Mr. Tait of the International Banking Corporation sheds further light on the subject as follows:

"The terms of the Chinese railway loan for the construction of the Hankow-Szechuan Railroad remain unsettled at the close of the year. There have been various causes of delay extending over the past nine months, but the matter which is delaying negotiations now is the failure of England to come to some agreement with France as to their relative share of control over a portion of the Szechuan Railroad. As England has shown every disposition to meet France, it may be that this matter will be adjusted very shortly. It may be also that the bankers are not hurrying the settlement, for the reason that the present condition of the money market, both here and in Europe, does not make a 5 per cent. Chinese loan, at par, very attractive, and even if the dispute were

(*From "The Banker and Investor Magazine."*)

GEORGE W. PERKINS

MEMBER OF THE GREAT BANKING FIRM OF J. P. MORGAN & COMPANY

FRANK A. VANDERLIP

PRESIDENT OF THE NATIONAL CITY BANK OF NEW YORK

(*From "American Magazine."*)

J. P. MORGAN, JR.

MEMBER OF THE FIRM OF J. P. MORGAN & CO.

adjusted the issue of the securities would undoubtedly have to be postponed. Meantime doubt is arising in the Chinese mind as to whether foreign capital is desirable in her railroad enterprises.

"The principal cause of the delay in settling the terms of this Chinese loan has not been due to China's action, but has been owing to the difficulty experienced by the competing countries in arranging the question of the amount of line which each would control and the appointment of engineers who could influence, in favor of their respective countries, all the railroad supplies needed, thereby originating the channel of future commerce referred to. It is inconceivable that the principal powers of Europe should have been wrangling for nine months over this business unless they saw some very valuable prize was at stake. Congratulations are due to the present administration that they recognized so promptly the opportunity in China to-day and were so quick to seize it."

These reports, if true, effectively solve the mystery surrounding the delay in coming to a decision on this important loan, and clears America from the charge of obstruction, and they also answer the attack by the *Wall Street Journal* on the American Group headed by J. P. Morgan & Co. The dissensions amongst the various Powers as to their share of the Canton-Hankow Szechuen loan have not been lost sight of amongst the Chinese, and have served to give time to the Hupeh gentry to strengthen their organization and oppose the loan at Peking. The *Wall Street Journal* remarks that "these gentry, representing the titled landowners, were the ones who felt the burden of raising the $6,750,000 with which the Chinese bought back from the old Brice syndicate, for which J. P. Morgan conducted the negotiations, the concession for the Hankow-Canton Railway. This sum was paid for 32 miles of line already constructed and about 50 miles of earthwork. For this reason it is said the gentry are much opposed to Morgan participating in any other concession in their territory."

Our contemporary ignores the fact that far from feeling the burden of raising this loan in Hupeh alone, the money was advanced by the Hongkong & Shanghai Bank, on the security of the opium tax of the three provinces of Hupeh, Hunan and Kwangtung, and the report of expenditures on the Canton-Hankow Railway Administration of Three Provinces shows that instead of these revenues being drawn on to meet the interest, the latter has been paid by the Railway Administration from its subscribed capital, and in reality constitutes a fixed charge on the Chinese line throughout the three provinces. The Chinese paid the American syndicate for the then existing 32 miles of road and 50 miles of earthwork, together with the plans and surveys of the completed line, a fair price, and $3,500,000 more for the loss of prospective profits. This latter sum thus represents the real price paid for the concession; and the profits of other railways in China, especially the I.R.N.C. and Pekin-Hankow line, indicate that the amount paid was small compared with the valuable rights surrendered. The alacrity displayed by British interests in advancing the funds, and the keen competition of other Powers to construct this line, fully demonstrate its value, and it may be accepted as a fact that any large aggregation of capital would to-day willingly pay $3,500,000 for the privileges surrendered by America which included participation in the net profits to the extent of 20%, and management of affairs in addition to supplying materials. The handsome returns of the northern trunk line from Hankow to Peking have convinced the Chinese of the value of the southern line as a dividend earner, and in the face of the $3,500,000 fixed charge on the unfinished line they are anxious to assume this liability and construct and operate it themselves. So far from being an expression of hostility to J. P. Morgan & Co., their attitude is dictated by the keen commercial sense characteristic of the race. And we may here repeat that, instead of harboring resentment against J. P. Morgan & Co., the high Chinese officials must know and appreciate the exact facts in the case. The Chinese in the first frenzy of the "rights recovery" campaign desired to build the road themselves, made their opening attack on the weakest

proposition and undoubtedly had a legitimate grievance against the old directorate of the America-China Development Co., which justified their demand for a cancellation of the concession.

The Chinese even at that time fully appreciated the great possibilities of the line and were determined to regain control. They knew, that is, those conducting the negotiations fully realized, that when J. P. Morgan took over the affairs of the Company, and the American government officially guaranteed its existence as an American institution, the road would be built. Morgan's entrance into the field at the last moment was a pledge that the work would be pushed ahead and completed as soon as he could straighten out the disorganized company, and those desirous of regaining control for their own ends knew and appreciated this fact, and fixed their determination to hold out for absolute cancelllation of the concession.

The American government and J. P. Morgan & Co., realizing that nothing could be done in the face of the plea put forward by China, without raising the suspicion that political motives predominated, consented to surrender the concession on the payment of a sum based on the loss of future profits. It is a matter of history that the Chinese with all their high flown patriotic talk could not raise the purchase money, and were compelled to borrow the amount from Great Britain, and have utterly failed to carry out the plan of constructing the line with their own funds. While it must be conceded that China had ample justification for her course of action against the old Development Syndicate, it must also be conceded that J. P. Morgan & Co. with its great capital and resources entering the field at the last moment would have saved the situation and restored American financial prestige to its former high plane. In view of all the facts in the case, China's obstinate holding out for the cancellation, based on the patriotic idea of repurchasing the rights for the benefit of her own people and the failure to make good, and transferring the surrendered rights to Britain, places China in the position of playing on American sentiment through false pretences. J. P. Morgan on whose shoulders devolved the final negotiations has been held up to ridicule and scorn and made the scapegoat for the sins of the old directorate by the Chinese and those unacquainted with the facts in the case.

Although by the surrender of all rights to the concession Americans were maneuvered off the board and have no just claim to re-entrance into the Canton-Hankow game, their rights in the Szechuan section are incontestable and common equity and fairness demands that they be permitted to take up their share in other schemes, and the firm of J. P. Morgan & Co. has the first moral claim to the recognition of the American and Chinese governments as compensation for the manner in which they were eliminated at a time when they could have redeemed the situation.

If, as the *Wall Street Journal* would have us believe, the name of Morgan is a heavy load for Americans to carry in their re-entrance into the Chinese field, and the gentry have threatened a rebellion in consequence of his connection with the American Group, it is fair to assume that the Chinese Government would also reflect to some extent this phase of popular opinion. That this argument is therefore advanced by disappointed competitors to cast discredit on the American programme, is patent to all who are familiar with recent facts. If this statement is correct, it fails to explain the unanimous support of the Viceroy of Manchuria, Governor of Mukden, and the Boards of Foreign Affairs, Communications and Finance, extended to the American Group, in confiding to it the financing of the proposed Chinchow-Aigun Railway for over $30,000,000, or the final signature of the Throne to this deal.

When it is remembered that the Chinchow-Aigun loan is a radical departure from all previous engagements of this character, in which every objectionable feature of control has been waived, and the word of the Chinese accepted to maintain the road in proper repair, and that the customary 5 per cent. commission on purchases has been eliminated, there is reason to believe that instead of cherishing resentment, the Chinese have cordially welcomed the support of Morgan to create a financial precedent which means the saving of millions to them in the future, before which the paltry $3,500,000 deal of the Canton-Hankow surrender pales into insignificance. The waiving of the 5 per cent. on purchases alone amounts to roughly 2 per cent. of the entire loan, or $600,000, and with other features of this one transaction, Morgan will have more than repaid to China the amount received for the cancellation of the old Canton-Hankow concession.

So we can now fairly analyze the various criticisms directed against President Taft for selecting J. P. Morgan & Co. and associates to represent American interests in the development of China. The proper financial element is vital to the future of American prestige in the East It is imperative that never again should important Chinese railway concessions with their semi-political character be allowed to fall into the hands of any but the strongest capitalists of the country in order to insure their faithful carrying out, without hawking them around the stock market. So it is entirely natural when President Taft had definitely decided upon a programme to rehabilitate American prestige in China, calling for the possible employment of many millions, he should turn for aid to the strongest financial group in the country, a group who, in default of a Central Bank, practically controls the money market of America, and corresponds in American financial circles to the position occupied in their own country by the Banks of England and France.

It must also be borne in mind that the American public has yet to be educated to the point of over subscribing a 5% Chinese railway bond issue, while the market offers so many more attractive securities at home. It may also be fairly accepted that no American banking house would consider the underwriting of an ordinary Chinese railway bond issue of sufficient attraction in itself, unless in the transaction were included some of the side features which have made them so profitable to European financiers, and at the same time so objectionable to China. A simple financial transaction embracing the underwriting of a large Chinese railway loan at the usual issue price and rate of interest would hardly be sufficient inducement for the average American financial syndicate to handle it, owing to the possible difficulty of selling the bonds, and the probability of the underwriters having to take up a large part of the issue themselves. It is not necessary to go far afield, to quote an instance where the American public refused to eagerly accept Eastern securities guaranteed by the American Government, and it has devolved upon the underwriting syndicate to take up and hold them or sell them to the public at a sacrifice. The situation thus revealed clearly proves that it is unwise on the part of the American Government to call on for co-operation at the present time any other than the very strongest aggregation of capital in the country so that in the event of the bonds not being popular, they could be still held by the syndicate as their own investment, and the prestige of the country maintained. While there is little doubt that many financial institutions in the United States would welcome the opportunity of co-operating with the government in the expansion of a foreign policy we believe that there exists a fair doubt as to whether they could successfully carry through such a task under existing conditions. The banker's profit or commission on the sale of the securities, through the indifference of the public, is liable to be sacrificed, and we believe that, in such an event, there is only one or two combinations of American capitalists who could shoulder the responsibility of holding the bonds in their own hands as an investment, or awaiting a favorable market.

America's re-entrance into the Chinese railway field apparently carried with it a broader financial policy than has hitherto existed and considered indispensable in dealing with China. The public had been carefully trained to believe that some supervision of the funds and co-operation in the management of the property was absolutely essential where China was concerned. America's determination to go outside the accepted order of things and counter to the best European financial practice was not calculated to enhance the popularity of such a deal. Therefore it is clearly evident that President Taft had only one course to follow, and that was to call to his aid a group of men whose great wealth and patriotism would arise above sordid financial considerations and whose co-operation assured the successful working out of the new programme. In so doing perhaps some injustice or slight has been inflicted on other financiers, just as patriotic and willing to assist, but lacking the essential qualities of strength so imperative to success. These remarks have been reprinted in Far Eastern papers and serve to create and foster the idea amongst the Chinese that the American Government, instead of being actuated by the highest motives in its policy towards China, is in reality using its immense influence to forward the interests of one group to exploit the Empire.

All impartial Americans will, however, feel that the American Group, headed by J. P. Morgan & Co., Kuhn, Loeb & Co., and the National City Bank, is a guarantee to China, and a safeguard to America that whatever obligation they assume will be faithfully executed to the entire satisfaction of all concerned.

—Geo. Bronson Rea.

THE CHINCHOW-AIGUN RAILWAY

On October 2nd, 1909, H. E. Hsi-Liang, Viceroy of Manchuria, and the Governor of Fengtien (Mukden), signed with Mr. Willard Straight, representing the American Group, and Lord French, representing Pauling & Co., a contract for the financing and construction of a railway between Chinchow and Aigun. This preliminary contract was submitted to the Throne in a memorial from the Viceroy, and referred to the Boards of Foreign Affairs, Finance and Communications for consideration. In view of the many difficulties and obstacles placed in the way of other similar projects, it is significant that in this instance there was a decided unanimity of opinion and co-operation on the part of the highest authorities to facilitate the negotiations.

In response to a united indorsement and memorial from the three Boards and the Viceroy of Manchuria, the contract was finally confirmed by an Imperial Rescript issued on January 21st, 1910. It is with considerable satisfaction that the Far Eastern Review is able to state authoritatively that the provisions of this contract are a decided departure from the terms hitherto held to be indispensable in dealing with China and approximate the conditions held by us in our Railway Issue as representing fair play to China. This contract is the first of its kind to be signed in China. The financiers waive all control over the railway, which is to be in all respects a purely Chinese line, under their own supervision and control. The Chinese government, however, engages to maintain the railway in good repair during the currency of the loan as a protection of the first mortgage on the property given as security to the bond holders. China's word is accepted as sufficient that she will honorably discharge her obligation, without the imposition of a foreign director or engineer to visé its affairs, and act as an additional guarantee for the fulfillment of the terms.

Difficulties which have heretofore been experienced surrounding the appointment of chief engineer and accountants of various national-

ities, lenders' commission on purchase of materials, preference for the supply of materials manufactured in the country furnishing the loan, and the various other complications incident to railway construction by the old method of departmental engineers, have all been avoided.

The new contract marks the termination of the other methods and heralds a new era in dealing with China. The American Group furnishes the required capital and Pauling & Co. receive in payment a flat price for the finished road turned over for operation by the Chinese authorities. Pauling & Co. make a flat bid for the entire line at so much per mile, and during the course of the contract are free from all interference, the Chinese government, however, reserving the right to appoint inspectors to see that the work is completed in a satisfactory manner, before final acceptance and payment.

As to the source of the materials employed in the construction of the road, this point is as yet undecided. The other conditions are, however, so liberal, that this point will undoubtedly be settled with satisfaction to all concerned. As British and Americans are working in harmony, there is every reason to believe that there will be a fair division of materials based on equal qualities and prices. The mere fact the road is to be built under contract at a flat rate, compels equitable treatment in the purchase of materials, as a safeguard to the contractor's profit.

It is a most happy combination for the construction of the line, for the firm of Pauling & Co. has a world-wide reputation as railway builders, and their organization and experience guarantees to China that the line will be well and expeditiously constructed.

The proposed line is about 750 miles in length and will part from the Imperial Railways of North China at Chinchow, in a northerly direction, passing over the hilly country into the broad Mongolian plains. It will tap the rich districts already under cultivation at Chengchiatun, Chingchiatun, Taonanfu and thence on to Tsitsihar, the capital of Heilungkiang Province. From Tsitsihar to Merguen and Aigun on the Amur River, the road will open up a fertile country which if properly exploited will rival the great northwest of America as a wheat producer. The road passes through various districts where deposits of coal, gold, and other minerals are capable of profitable development. The Chinese government has already initiated a large colonization scheme to people the waste lands of Manchuria with settlers from the overcrowded provinces in the south, and it is intended to further encourage immigration into the broad fertile plains of Eastern Mongolia, now given over to roaming bands of nomads and cattle raising.

Aside from the strategic value of the line, which was fully discussed in the March issue of the FAR EASTERN REVIEW, there are urgent economic reasons why this line should be built as soon as possible. If other countries find it imperative to open up new districts for their rapidly increasing inhabitants, how much more urgent is it for China to do likewise? While white races double their numbers in every hundred years, it is estimated that the Chinese will do the same every 60 years, and the congestion and struggle for existence now going on in some parts of Empire is without a parallel in any other section of the globe. Especially is this so in the province of Shantung only a day's journey from the land of milk and honey to the north. China must find a place for her excess millions and her right to expand within her own confines is indisputable. No other country in the world will open its doors and admit the unrestricted flow of China's millions. In fact every other country has emphatically protested against their admission.

The vast fertile regions of Manchuria and Mongolia mean to China what the northwest does to America, a national granary to supply what the worn out lands in other sections of the country are incapable of doing, and provide homes and farms to the struggling millions who are otherwise doomed to eke out a miserable and precarious existence in the congested and unproductive districts of the southern provinces. And this great economic and humanitarian scheme can only be possible by building a railway into this fertile region so as to provide transportation and a market for the crops. Political considerations may impede and postpone the colonization and development of this region, but the end is inevitable. All the power of Russia and Japan with the support of every other country in Europe cannot avert the ultimate execution of the scheme.

As to the Japanese contention that it may divert traffic from the South Manchuria Railway, the answer is simple. The South Manchuria Railway is already taxed to its utmost to handle the traffic in its own sphere, and to hold its own in competition with the Chinese Eastern Railway for bean shipments, it must double track its entire length, quadruple its car capacity, and then open to trade the hitherto mysterious and closely guarded strategic base at Port Arthur. Japan has all she can do to keep abreast of the development of the country and furnish adequate facilities to the districts served by her railway.

Ten years from now—if a conflict can be averted—the development of Manchuria will require many more miles of railway to cope with the traffic. Like the Canadian Pacific, Great Northern or Northern Pacific Railways in America, it will be necessary to build spur lines every 50 miles or more to reach out into the country and facilitate the movement of the crop. No one railway unless it is four tracked and with more terminal facilities than now exist in Manchuria, can hope to alone handle the traffic. The opening up of Eastern Mongolia by the Chinchow-Aigun Railway, instead of being a commercial menace to the Japanese line, will materially contribute to its prosperity by increasing the purchasing and consuming power of the entire province.

Despite the various difficulties which have been raised by Russia and Japan, there seems little doubt that the proposed line will ultimately be constructed. It is, however, conceded that some amicable arrangement must be made with these two powers, not because they are right in principle but to live up to the American and British conception of the Open Door. Japan has requested participation in the finance and construction of the line, and desires to share in the sale of materials and have her engineers employed on the railway and furthermore requests that a connecting link be made with the South Manchuria line.

Russia objects to the road, particularly the Tsitsihar-Aigun section, on purely political and strategical grounds, and has suggested as an alternative proposition that China build the much discussed railway north from Kalgan across Mongolia to Urga and Kiachta to connect with the Trans-Siberian line. In other words what would be a strategic menace to Russia's Amur's region in the building of the Tsitsihar-Aigun line, would not be a menace at all if the line was shifted over a few hundred miles. The situation is obvious, and proves the force of the statement in last month's issue of the FAR EASTERN REVIEW. Russia does not fear China, but she does dread the possibility of Japan quickly seizing the road and cutting her line of communications. And by the same logic, if Russia objects to the Aigun section on political grounds she should also object to the Kalgan Kiachta line, which is just as much a menace and more so in the hands of an energetic foe. But Russia's attitude only serves to accentuate the high points in her traditional policy in the Far East. Russia also objects on the very shaky ground that in 1899 China engaged not to construct railways north or northeast from Peking without consulting Russia. The situation has changed somewhat since then, when Russia was mistress of Southern Manchuria and its only railway. Japan now occupies her position and should fall heir to that objection, which she capitalized in the alleged secret agreement of 1905.

It is a remarkable exhibition of Russia's diplomacy, that while she drags out this old agreement against building to the north or northeast, she is willing that China should now, in 1910, turn to the northwest towards Urga and Kiachta. Friendly feelings are outraged in the northeast, but if China will only come over to the northwest and play in that back yard, why, Russia will again be her only true and very best friend.

It is difficult to reconcile the Russian and Japanese attitude with their express declarations in the Portsmouth Treaty, and their respective engagements to England, France and the United States regarding the maintenance of the Open Door and equal commercial opportunity in China. Great Britain, despite the interest of her nationals, has taken the extraordinary view that China should consult both Japan and Russia before concluding the detailed agreements for financing and construction of the line. As we pointed out in our last issue, British policy is far sighted, and has in mind the ultimate effect the construction of the line might have on weakening Japan's position in the event of a war with Russia. Japan's defeat means the concentration of Russia's attention to the frontiers of India, and Great Britain must disapprove of any issue which might in the most remote manner tend to bring this around.

We are confirmed in this opinion by the fact that when the British government was recently interpellated in its position concerning the Chinchow-Aigun line and the failure to support its own nationals who held the contract for its construction, the reply was to the effect that the British government's attitude was based on the Anglo-Russian agreement of 1899 by which Britain undertook not to seek railway or other concessions north of the Great Wall, and Russia made the same agreement concerning the Yangtsze Valley, while each undertook not to oppose each other's enterprises. Therefore, as the agreement had not been abrogated, Britain had to remain neutral and refrain from active participation in the controversy.

It would appear from this, that the British government holds that the old "sphere of influence" agreements and understandings still continue in force, despite the many subsequent exchanges of diplomatic notes creating and affirming allegiance to the principles of the Open Door.

It is difficult to believe that Great Britain would deliberately revert to the old order of affairs in China, and it seems plausible that this reply made to a question in the House of Commons was simply an expediency to justify its present policy in Manchuria, without disclosing to the world the weightier reasons of state really underlying the situation.

Politics pure and simple are behind all the objections raised against the carrying out of the line. Neither China nor the United States, or the American and British syndicates involved, have any objection to Russian and Japanese participation in the enterprise on a purely business basis. We can state authoritatively that the American Group and Pauling & Co. would welcome the co-operation of Russian and Japanese interests on a business basis, and it is to be hoped that a settlement will soon be reached where China's rights to build a railway in her own territory will once and for all time be recognized, and under which the various foreign interests concerned shall co-operate along the lines already laid down by the American Secretary of State in his proposal for the neutralization of Manchurian Railways.

The Chinchow-Tsitsihar-Aigun Railway

America's Position on Chinese Railway Loans.

The American position in regard to participation in the Hukuang Loan, neutralization of Manchurian railways and construction of the Chinchow-Aigun line, was set forth in an official statement of the Secretary of State in January last, in the following terms:—

DEPARTMENT OF STATE, DIVISION OF INFORMATION.

WASHINGTON, *January* 6, 1910.

In reply to an inquiry as to the truth of the St. Petersburg report relating to the neutralization of railways in Manchuria, the Secretary of State to-day said:

The proposition of the United States to the interested powers looking to the neutralization of the Manchurian railroads discloses the end towards which American policy in the Far East has been recently directed.

Late in May last this government learned that an understanding had been reached between important British, French and German financial groups supported by their governments by which they were to furnish funds for the con-

struction of two great railways in China. This government, believing that sympathetic co-operation between the governments most vitally interested would best subserve the policies of maintenance of Chinese political integrity and equality of commercial opportunity, suggested that American co-operation with the powerful international financial group already formed would be useful to further the policies to which all were alike pledged.

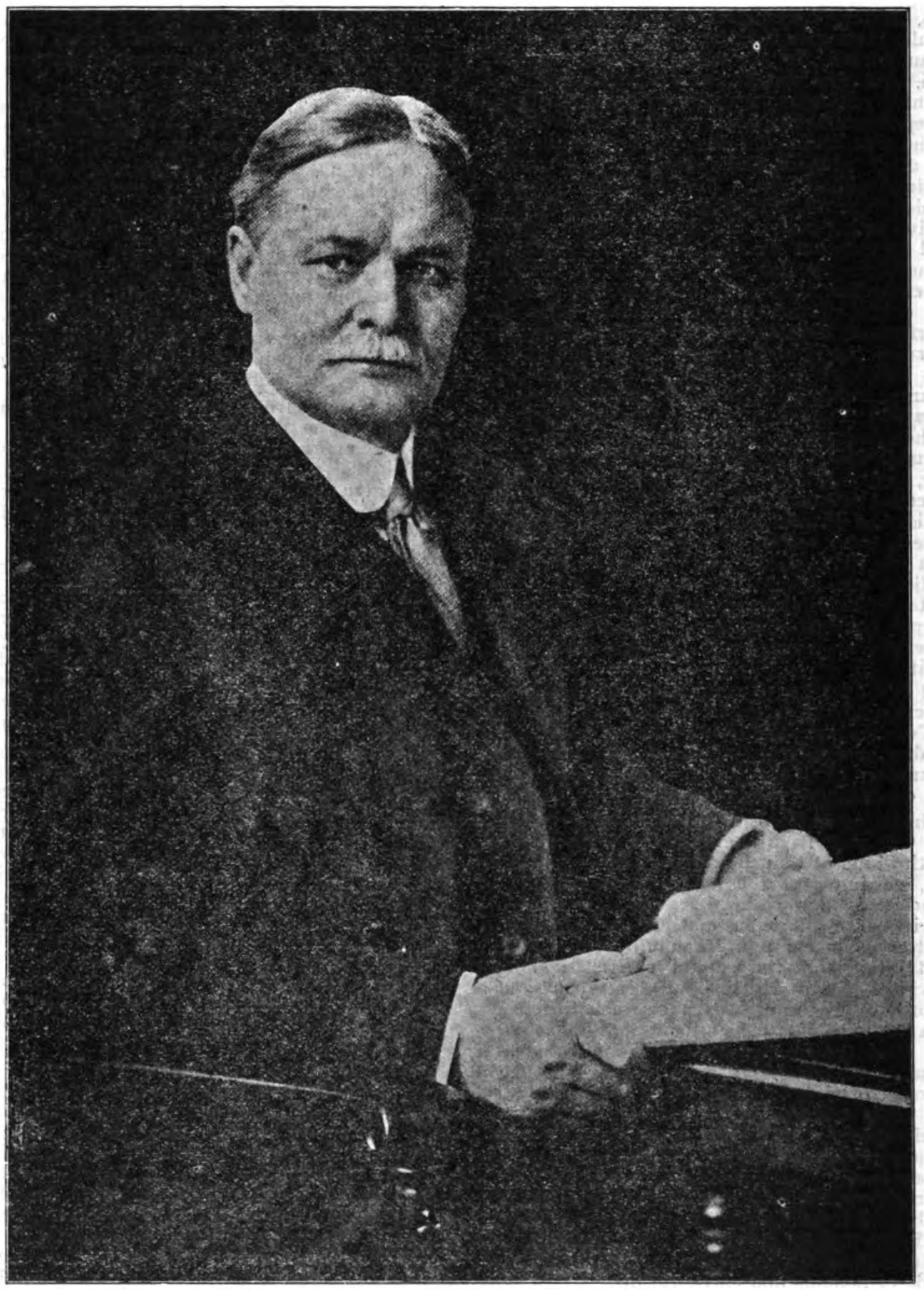
This government pointed out that the greatest danger at present in China to the open door and the development of foreign trade arose from disagreements among the great western nations, and expressed the opinion that nothing would afford so impressive an object lesson to China and the world as the sight of the four great capitalist nations—Great Britain, Germany, France and the United States—standing together for equality of commercial opportunity.

Owing to the strong opposition that had developed in certain official quarters in China and elsewhere, the President, in July last, felt warranted in resorting to the somewhat unusual method of communicating directly with his Imperial Highness Prince Chun, Regent of the Chinese Empire, informing the latter that he was greatly disturbed at the reports of certain prejudiced opposition to the Chinese Government's arranging for equal participation by American capital in the Hukuang loan. The president pointed out that the wishes of the United States were based upon broad national and impersonal principles of equity and good policy in which a due regard for the best interests of China had a prominent part. He reasserted his intense personal interest in making the use of American capital in the development of China an instrument in the promotion of China's welfare, and an increase in her material prosperity without entanglements or embarrassments that might affect the growth of her independent political power and the preservation of her territorial integrity.

As a result of this communication an agreement was soon reached with the Chinese Government that American bankers should take one-fourth of the total loan and that Americans and American materials should have all the same rights, privileges, preferences and discretions for all present and prospective lines that were reserved to the British, German and French nationals and materials under the terms of their original agreement, except only the right to appoint chief engineers for the two sections about to be placed under contract. As to the latter point China gave assurance that American engineers would be employed upon the engineering corps of both roads and that the present waiving of America's right to chief engineers would in no way prejudice its rights in that regard when future extensions should be constructed. After several months of continuous negotiation, the right to such American all round equal participation has been acknowledged and a final settlement on this basis has been all but completed.

The grounds for this energetic action on the part of the United States Government have not been generally understood. Railroad loans floated by China have in the past generally been given an imperial guarantee and secured by first mortgages on the lines constructed or by pledging provincial revenues as security. The proposed hypothecation of China's internal revenues for a loan was therefore regarded as involving important political considerations. The fact that the loan was to carry an imperial guarantee and be secured on the internal revenues made it of the greatest importance that United States should participate therein in order that this government might be in a position as an interested party to exercise an influence equal to that of any of the other three powers in any question arising through the pledging of China's national resources and to enable the United States, moreover, at the proper time again to support China in urgent and desirable fiscal administrative reforms, such as the abolition of fiscal and monetary rehabilitation.

There were, however, stronger reasons and broader grounds. In fact the action of the government in respect to the pending loan was but the first step in a new phase of the traditional policy of the United States in China and with special reference to Manchuria. As is well known, the essential principles of the Hay policy of the open door are the preservation of



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HON. WILLIAM J. CALHOUN OF ILLINOIS
(The new American Minister to China.)

the territorial and jurisdictional integrity of the Chinese Empire and equal commercial opportunity in China for all nations. This government believes that one of the most effective, if not the most effective, way to secure for China the undisturbed enjoyment of all political rights in Manchuria and to promote the normal development of the Eastern provinces under the policy of the open door practically applied, would be to take the railroads of Manchuria out of Eastern politics and place them under an economic and impartial administration by vesting in China the ownership of its railroads; the funds for that purpose to be furnished by the nationals of such interested powers as might be willing to participate and who are pledged to the policy of the open door and equal opportunity; the powers participating to operate the railway system during the period of the loan, and enjoy the usual preferences in supplying materials.

Such a policy would naturally require for its execution the co-operation not only of China but also of Japan and of Russia who already have extensive railway rights in Manchuria. The advantages of such a plan are obvious. It would insure unimpaired Chinese sovereignty, the commercial and industrial development of the Manchurian provinces, and furnish a substantial reason for the early solution of the problems of fiscal and monetary reform which are now receiving such earnest attention by the Chinese Government. It would afford an opportunity for both Russia and Japan to shift their onerous duties, responsibilities and expenses in connection with these railways to the shoulders of the combined powers, including themselves. Such a policy, moreover, would effect a complete commercial neutralization of Manchuria, and in so doing make a large contribution to the peace of the world by converting the provinces of Manchuria into an immense commercial neutral zone.

The recent signature of an *ad referendum* agreement between a representative of the Chinese Government and the financial representatives of the United States and Great Britain to finance and construct a railway line from Chinchow to Aigun gave the United States an opportunity to lay this proposal before the Government of Great Britain for its consideration, and it is gratifying to be able to state that the project has already received the approval in principle of that Government. There are reasons to believe that such a plan might also meet with like favorable consideration on the part of Russia. Germany and China cordially approve the American suggestion, and certain press reports from Japan indicate that the project may likewise be received with favor by that country. For instance, a recent article on the subject in the *Japan Mail* ends with these significant words:

"One cannot conceal from oneself the fact that if all the railways forming part of the system which connects the West with the Far East were converted into a neutral estate, a great contribution will be made to the peace of the world."

PRESS, FINANCE AND DIPLOMACY

The drifting apart of American and British sentiment, arising out of the railway loan events of the past year, has already reached that stage calling for cool-headed expressions of opinion to avoid further bitterness. *The North-China Daily News*, in its leader of March 30th ulto. commenting on the situation, starts off with an evident attempt to preserve a show of dignity and says:

"It is not in the interests of the two nations that private disappointment should be allowed to embitter relations between Great Britain and the United States; but it is clear that the present campaign is in danger of achieving such a result unless it is checked without delay."

But after this most commendable text, the same writer forgets what he started out to preach and administers a good hard resounding editorial kick to the successful young American Chargé d'Affaires who worsted the opposition fairly and honorably in one of the keenest diplomatic fights of recent years. *The North China Daily News* says:

"In the interval that has elapsed between the departure of Mr. W. W. Rockhill from the American Legation in Peking and the arrival of the new Minister the representation of the United States in China seems to have been taken out of the hands of the accredited representative and vested in a syndicate of the Press, Finance and Diplomacy, exercising powers, as far as can be gauged, in that order of importance. The fullest sympathy is felt with the determination of the Washington Government to promote American interests in this empire, and its stout championship of the policy of the open door carries with it advantages that are shared by all nations. It is unfortunate, therefore, that its laudable endeavours in this direction should be associated with mere personal prejudice owing to the fortuitous circumstance of an interregnum at the Peking Legation."

A more unkind, unfair attack upon an honest and fearless adversary is hard to imagine. And for what? Because Mr. Fletcher discovered the European groups dividing among them the Hankow-Szechuen loan, which only America had a right to share with Britain, and informed his government, who intervened just in time to prevent this alienation of its rights. By this act, he naturally incurred the animosity of the other side.

It is also natural that they would endeavor to minimize the results of his labors, but it ill becomes the leading champion of British interests in China to withhold from Mr. Fletcher just recognition of the splendid services rendered in behalf of those interests he was sworn to protect.

Mr. Fletcher, although still a young man, won his spurs in a hard fought straightforward campaign against some of the keenest diplomats of Europe, and his countrymen feel justly proud of his achievement and success, and his government has rewarded him by elevation to the post of Minister to Chili. To suggest that Mr. Fletcher subordinated his position to the dictates of the Press and Finance, is an unkind slight to a capable and fair-minded official and a reflection on the government whose orders he was obeying. Such criticisms from the exponent of British opinion in the East are hardly calculated to act as oil on the troubled waters of Anglo-American feeling, and it is difficult to believe that they in any way reflect the sober, solid sense of the great fair-minded British community it purports to represent.

The palpable injustice and utter absence of fair play is all the more apparent when it is remembered that to a large extent the situation alleged to exist in the conduct of the American Legation, under Mr. Fletcher, is only a duplicate of what has been going on for years in the furtherance of British interests in Peking.

For many years the leading British journalist of the East, Dr. Morrison, has been on the most intimate terms with the different British Ministers and Secretaries of Legation and with the high Chinese officials, in addition to being a warm friend of Mr. J. O. P. Bland, the representative of the leading British railway syndicate in China. The cordial and harmonious relations which have always existed between the British Legation, the *Times* correspondent, and the agent of the British and Chinese Corporation, is well known to all in China. There is every evidence to support the statement that these forces at all times worked in complete accord, and the combined power of British official and press influence was brought to bear to advance the schemes of the financial syndicate to such an extent, it is claimed, that the latter had a monopoly of the former to the disadvantage of other British interests who desired an entrance into the field. And yet with all these well known and established facts to go on, American writers would be the last to wound British susceptibilities by suggesting that the Press and Finance had usurped the powers of the British Minister at Peking.

For years America has accepted its news from China through British agencies, colored with all the natural British prejudices, but latterly one leading American paper has stationed its own correspondent at Peking, where for years *The Times* has ruled supreme. An American financial syndicate has also sent its representative to Peking, and it is quite natural that the same community of interest would exist between them and the American Legation as had already been established by the triumvirate who have successfully advanced British interests in China for the last decade.

G. B. R.

PHILIPPINE MINING NEWS

THE MAYOT MINING COMPANY.—This company, which is controlled by Hongkong capitalists, is developing a group of 18 claims on Gold Creek in Benguet, near the Kelly Group, and has over 75,000 tons of ore in sight on the main reef which is 20 feet in width. The company is working three shafts, and over 3,600 feet of tunneling was reported the first of April. The ore varies in value but maintains an average of about ₱16. Mr. T. Phillips is the superintendent.

THE BUA MINING COMPANY.—As announced in this company's annual report the plant will be increased in a short time to a battery of twelve stamps, or double its present capacity. In the near future shares will be put on the market to realize capital not only for this increase of plant but to develop a number of claims controlled by the company that have not yet received much attention. The operations of this company have been confined largely to the Gomok claim, and from the result of last year's workings, in very low grade ore on the Gomok, the development of the richer bodies should be marked by greatly increased profits. This company has been very conservative and development work has been pushed since its first installation.

THE HEADQUARTER'S MINING COMPANY.—This company which controls one of the richest prospects in Benguet is preparing for the installation of its battery of ten stamps recently ordered from the United States. A cyanide plant has also been ordered from the Atlantic, Gulf & Pacific Company. In the meantime the development of the property is going on apace. It will be remembered that a large part of the stock in this company is held by Hongkong capitalists. While it is early to predict the future of the company, the directors have been pursuing a consistent conservative policy and the ore in sight and available at the mill site points to continuous activity once the installation is made.

THE ANTIMOK VALLEY MINING COMPANY.—This new company, formed for the development of rich Benguet properties, has placed ₱200,000 worth of stock in the local market. The money realized is to be used in further development of the property, which includes 21 claims, and the installation of a battery of 20 stamps, cyanide plant, etc. The first payment of ₱10,000 was made recently and is being used in development work and assessments will be made from time to time until the program of the company is carried out. This property gives great promise. From the expert's report it shows assays ranging from ₱8.26 per ton to ₱66.14 per ton gold and from 0.24 oz. silver to 1.30 oz. silver per ton in the samples taken from nine of the claims.

THE PARACALE GOLD DREDGING COMPANY.—This company has been working on the installation of a new dredge which will be completed and in operation about the last of May. This dredge will have a greater capacity than the old one and be better adapted to the natural conditions existing there. It is believed that the prospects of this company are even brighter than heretofore. It will be remembered that in six months' operations on the Paracale last year this company took out an average of ₱2.00 per cubic yard of dirt handled.

THE MAURICIO MINING COMPANY OF PARACALE.—This company has been operating a battery of ten stamps and it was expected that the entire capacity of the mill would be enlisted by this time. While no official statement has been given out as to the result of the initial operations, it is believed that the directors are more than satisfied with results. An advance in Philippine Exploration Stock has been noted and holders are sanguine for the future. In the meantime the official report of the Mauricio operations is looked forward to with some anticipation.

NEW DEVELOPMENTS AT NALASVETAN.—The *Philippine Free Press* is authority for an interview with Mr. Wm. Neill who is interested in a gold prospect adjacent to Mambulao and Paracale in which Mr. Neill is quoted as stating that it is the intention of the owners to float a company in Manila to develop a number of claims there. He reports that one of the properties, the Tuba, comprising three claims, will be the one first developed. Of the development work he says: "Three tunnels have been driven, the 1st level tunnel for a distance of 87 feet, the 2nd level tunnel for a distance of 134 feet. The 2nd level tunnel will pan for 125 feet which leaves only nine feet of waste or ore showing no values."

The values indicate enthusiasm in the future of the prospect backed by substantial activity in development.

NUEVA ECIJA PLACER GOLD FIELDS.—A large section of Nueva Ecija has been prospected during the last year and the result is thousands of acres of placer tested showing values from 80 centavos to ₱1.50 per cubic yard of dirt. These deposits are found on the tributaries of the Rio Grande and lie adjacent to the old workings at Gapan. The gold is divided about evenly into coarse and fine gold with a slight percentage of platinum. Most of the property is very desirable dredging ground and with a careful investigation into natural conditions before installing dredges, should prove as successful as any Philippine mining enterprise. A number of experts have been over the ground and given most favorable reports and several groups of owners are concluding arrangements with New Zealand capital to undertake dredging operations. There are also some hydraulic prospects in the mountains of this region, but little or no investigation has been made along this line. In the meantime prospectors have been busy staking and testing ground so that all the more desirable land has been taken up. The future of this region is as bright as any section in the islands. The owners, however, are inclined to conservatism Benefiting from the experience of enterprises hastily undertaken, they are busy developing and testing their properties thoroughly before inviting capital to participate. However, every month inclines to greater encouragement as more and more data is made available.

THE MANCAYAN COPPER PROSPECTS.—Little can be learned regarding the deal between the Lepanto Copper Company and the Tellus Company. As far as is known, the option of the Tellus Company does not expire until August. Representatives of the latter company have gone carefully over the ground and one has returned to Germany to report. The other is making final assays in Manila. This property is considered very valuable, the body

of ore being estimated as one of the largest in the Far East so far developed to any degree. It is located about 35 miles from the west coast of Luzon and transportation facilities by railroad through difficult country have been one of the obstacles to its development. However, the owners of the property have always believed that the extensive deposits of ore in paying values would warrant the investment of sufficient capital to overcome the transportation problem and, as development work progresses slowly, there is evidence that their faith is not misplaced. Unfortunately, the mining laws of the Philippines are not conducive to rapid uncovering of mineral wealth. Assessment work must be done on individual claims to conform to the law. If it were possible to pool the assessment work so that a well directed campaign of development could be carried out on a group of claims such as the Mancayan copper, more definite and satisfactory data would be available. At the present time, however, a little has been accomplished on each claim, but the general results have not been satisfactory. It is understood that the Tellus people are securing options on gold property at Suyoc, adjoining the Mancayan Copper. The more sanguine of the prospectors in this region predict a second Butte. It is understood that officers of the new Copper Trust in the United States are interested in these deposits and that a representative is now on the way to look them over.

THE BENGUET CONSOLIDATED MINING COMPANY.—A force of 40 men under the direction of Mr. R E. Kent, an experienced mining man, who has been engaged in mining in the United States and Korea for more than thirty years, is now busily engaged in making the necessary repairs to the plant of this company and pushing forward development work. Six stamps are at present in operation, crushing ore taken from the dump and that necessarily handled in prosecuting repairs and development work. Since the destruction of the cyanide plant by the storm of October, 578.42 ounces of gold have been produced by the plates, the slimes and sands being stored up for treatment when the cyanide plant is restored.

Two plans are at present being considered for future operation, but the indications are that the milling plant will be moved to a site adjacent to the old one, in which event, the company should have nine stamps and necessary cyanide plant in full operation by March 1st, 1911.

THE STANLEY COMPANY'S OPERATIONS.—This Paracale company has been operating its dredge since September 27th with the loss of 10 working days for repairs replacing buckets. Altogether since that date 724 ounces of gold have been realized. The ground now being worked is very low grade, but the work is preliminary to undertaking the dredging of rich placer further on. The average tests of this company's ground run ₱1.07 per cubic yard and the maximum test ran ₱2.50.

The Stanley company was organized at Dunedin, New Zealand, with a capital of £10,000. The dredge is of New Zealand pattern adapted to the ground.

THE PARACALE EXTENSION GOLD MINING COMPANY.—Advices received from Shanghai are to the effect that stock in this company has been sold to the amount of ₱100,000. This issue is for the purchase of a five-foot close connected bucket dredge. Mr. M. A. Clarke, President of the company, has been interesting Shanghai capitalists in the venture. The property of this company is very valuable and has been thoroughly tested. It is the purpose of the organizers to add a seven foot dredge to its equipment in the near future. The company is capitalized at ₱450,000, of which ₱175,000 was paid up and ₱100,000 issued in Shanghai. The installation of the dredge will be made as soon as possible.

A CORRECTION.—In an editorial under the caption "American Gold Dredging Practice," the statement appears "there is every indication that during the next year there will be 500 dredges at work in the Philippines." This should read "50 dredges."

CONTRACTING NEWS

U. S. ARMY.—Furniture, 400 library chairs—400 library rocking chairs—800 chests of drawers—400 bookcases—400 parlor tables—400 kitchen tables—Awarded the Cadwallader-Gibson Lumber Company of Manila in competition with leading American manufacturers. With exception of kitchen tables all furniture will be made of the best Batan tanguile. This company has just completed a contract with the army for 350 dining room chairs. Both contracts will aggregate ₱150,000.

BIDS OPENED.—BUREAU OF PUBLIC WORKS, PHILIPPINES.—San Miguel Irrigation scheme including construction of dam.—H. Thurber was the lowest bidder at ₱180,000. The other bidders were: Atlantic, Gulf and Pacific Company; W. W. Coleman, E. E. Calvin, Delmar W. Smith and Arthur E. Allen.

BIDS OPENED.—U. S. COMMISSARY DEPARTMENT.—6,600,000 pounds of beef and 200,000 pounds of mutton—Awarded the only bidder, the Queensland Company, price 8.5 cents a pound for beef and 6.4 cents a pound for mutton delivered at Manila.

BIDS OPENED.—BUREAU OF PUBLIC WORKS, PHILIPPINES.—Construction of San Lazaro Hospital and Laundry Buildings:

Robert M. Loper	₱27,300 00	200	days	Contagious Disease Ward
Robert M. Loper	37,300 00	200	"	as per par. 45
Robert M. Loper	13,300 00	210	"	Laundry.
John Gordon	40,042 00	190	"	Contagious Disease Ward.
John Gordon	53,172 00	190	"	as per par. 45.
John Gordon	15,200 00	155	"	Laundry.
H. Thurber	34,775 00	220	"	Contagious Disease Ward.
H. Thurber	45,075 00	220	"	as per par. 45.
H. Thurber	21,000 75	180	"	Laundry.
W. W. Coleman	45,044 00	240	"	Contagious Disease Ward.
W. W. Coleman	62,515 00	240	"	as per par. 45.
W. W. Coleman	16,435 00	240	"	Laundry.
C. F. Campbell	36,660 00	150	"	Contagious Disease Ward.
C. F. Campbell	49,330 00	150	"	as per par. 45.
C. F. Campbell	17,440 00	100	"	Laundry.
M. X. Z. Winberger	33,870 00	180	"	Contagious Disease Ward.
M. X. Z. Winberger	46,000 00	180	"	as per par. 45.
M. X. Z. Winberger	15,170 00	180	"	Laundry.

BIDS OPENED,—ELECTRICITY DEPARTMENT, SHANGHAI.—Supply of Coal.—Bid of the Mitsui Bussan Kaisha at Tls. 5.80 per ton, Takaye Small Coal, accepted. The other bidders were:

		Tls.
Johnson & Herlofson	Kiusuno	5.40
" "	Shigasira	5.60
Mitsui Bussan Kaisha	Yoshio	5.50
" " "	Fushun	6.10
B. Roth & Co.	Moji	5.75
Hopkins, Dun & Co., Ltd.	Meneji Kirigomi	5.80
	Namazuta Kirigomi	5.85
H. Robertson		8.23

And one irregular tender.

BIDS OPENED.—The *Singapore Free Press* announces the following contracts awarded by the Singapore Municipality:

For repairing, painting and colour-washing certain Municipal markets, namely—Ellenborough Main and Eating Markets, $1,320 plus $125 for painting corrugated iron, submitted by Mah Yee Kee. Clyde Terrace Main and Poultry Markets, $1,150 submitted by Chea Peng Tee, Teluk Ayer Market, $5,000, submitted by Pah Soon Cheow.

Messrs. Howarth Erskine, Ltd., to carry out certain repairs and renewals to Johnston's Pier gangways and dolphins for the sum of $2,430.

The Agent, Mr. C. C. Lindsay, to supply valve chamber covers, steel joists and accessories for the Kalang River reservoir gravitation main for the sum of £325 including cost, freight and insurance delivered at Tanjong Pagar wharves.

The Central Engine Works to retube two boilers at the Pumping Station for the sum of $2,054.

BIDS OPENED.—Chief Quartermaster, Philippines Division.—Two Hospital Stewards' Quarters, Fort McKinley. The following bids were presented:

H. Thurber, ₱8,975, to be completed within 120 days.

Delmar W. Smith, ₱11,247, to be completed within 150 days;

M. X. C. Wineburger, ₱11,120, to be completed within 120 days.

BIDS OPENED—MANILA HOTEL COMPANY.—The contract for the construction of the new Manila Hotel was awarded Mr. R. M. Loper of Manila. The price for the work, including, plumbing, electric installation, etc., was 626,000 pesos.

BRICKWORKS MANAGER—An expert Brickworks Manager, at present holding position as Manager of Large Brick, Tile, and Pipe works in the East, will shortly be disengaged on the expiration of a large contract at present in hand, and will then be prepared to consider offers for a similar appointment with some firm of standing or to advise upon and draw up full working plans of plant and works for the manufacture of Brick, Tiles, Terra cotta, Earthenware, Glazed goods and all kinds of Cremonic work.

Excellent testimonials from leading firms both in England and in the East.

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Far Eastern Review

13 NANKING ROAD

FAR EASTERN ENGINEERING, CONSTRUCTION, FINANCIAL AND COMMERCIAL NEWS

BIDS OPENED.—CHIEF QUARTERMASTER, MANILA.—8,000 barrels of cement.—The following bids were submitted: Société de Ciments Portland Artificiel de l'Indo Chine $2.02 per barrel at Manila; W. H. Anderson $2.16; H. W. Peabody and Company $2.25; W. F. Stevenson and Company $2.30; Findlay and Company $2.34.

CONTRACT AWARDED.—Royal Southern Railway, Siam.—Five Tank Locomotives and 150 ballast cars.—The Usines Braine Le Comte of Belgium secured the contract for the cars at £9,750 and the Brush Electrical Engineering Company of London, the locomotives at £5,698. Full list of tenders was published in recent number of the REVIEW.

PROPOSALS FOR SUPPLY OF 20 ELECTRIC MOTORS FROM 3 TO 20 H. P.—Electrical Engineer, Municipality of Shanghai. 25% deposit—tenders received to April 30th, 1910.

PROPOSALS FOR THE SUPPLY OF PORTLAND CEMENT.—Municipal Council, Shanghai.—Tenders will be received up to July 2nd, 1910, at noon, addressed Mr. W. E. Leveson, Secretary.

PROPOSALS FOR THE SUPPLY OF RAILWAY MATERIAL.—Bureau of Supply, Manila, including 2858 rails, 9 kilo, in 7 meter lengths, unit, meter; 7,200 fish plates, unit, each; 14,400 bolts, fishplate, unit, 100; 10,000 ties, steel, 750 m.m. gauge, unit, each; 5,000 clips for ties, unit, 100; 50,000 bolts, clip, unit, 100. Bids must be submitted by May 3rd, 1910, delivery on wharf at Bureau. Time required for delivery must be stated.

PROPOSALS FOR TWIN SCREW HARBOR BOAT:—Headquarters Philippines Division, Office of Chief Quartermaster, Manila, P. I., April 20th, 1910. Sealed proposals, in triplicate, subject to usual conditions, for the construction and delivery to this Department, complete and ready for service, of one Twin Screw Harbor Boat, will be received here until 11:00 a. m., June 10th, 1910, and then publicly opened. Plans, Specifications and other information furnished upon application. F. G. Hodgson, Deputy Quartermaster General, U. S. Army, Chief Quartermaster.

Fairbanks-Morse Marine Engine Catalogues.—Fairbanks,-Morse & Co., of Chicago, Ill., have just issued their new Catalogue No. 113, which fully describes and illustrates their 1910 line of two-cycle marine engines. This catalogue is well gotten up, beautifully illustrated with many fine halftones, printed on a high grade enamel paper and contains complete descriptive matter, being a very handsome and useful catalogue. For 1910 they are offering two types of two-cycle marine engines, namely, Types "E" and "G." The new Type "G" takes the place of their 1909 Type "F" and is a marked improvement over same. It is built in sizes from 6 to 45 HP, is made in one, two, three, four and six cylinders and embodies all the latest improvements—a special feature being "auto control" which makes it particularly adaptable to boats where the engine is located forward and controlled from the cockpit. The type "E" engine, 3½ HP and 7 HP single and double cylinder, is practically the same as their 1909 model, except that a few changes have been made which add greatly to its appearance and efficiency. The beautiful finish, easy accessibility of parts, easy starting, high grade material and workmanship and efficient oiling system are some of the strong points of their 1910 line of two-cycle Marine Engines.

The Four-Cycle Heavy Duty Fairbanks-Morse Marine Engines are fully described and illustrated in Catalogue No. 112B, which is very attractive and which contains complete information covering this line. These engines are already well known and hold an enviable reputation for reliability and service. They are built in sizes from 20 to 100 HP in two, three and four cylinders.

ELECTRIC RAILWAYS, LIGHT, POWER, TELEGRAPHS, TELEPHONES, AIRSHIPS, GAS, ETC.

JAPANESE WIRELESS.—Work is progressing on the improvement of the wireless apparatus on Goto Island near Nagasaki so as to extend its radius to 1,000 miles and include communication with Formosa via Osezaki.

THE KYO-O-DENKI ELECTRIC RAILWAY.—This company, which secured a concession for the construction of a tram connecting Shibuya and Hachioji along the Koohu three years ago, is to begin construction at an early date. The capital subscribed is yen 1,250,000.

FUKUOKA-HAKATA ELECTRIC LINE.—The operations of this line which began on March 9th give promise of results that exceed the expectation of the projectors.

TOKYO ELEVATED ELECTRIC RAILWAY.—This project, which originated in 1907 through Mr. Amenomiya, consists of the construction of two lines of trams through the more densely populated section of the city, one running north and south, and the other east and west. The purpose is to cater to long distance traffic which the Tokyo Railway declares it is carrying at a loss. It is n w assuming more satisfactory form and the plans will be carried out as originally outlined. The proposed line will have a gauge of 4 feet 6 in. with a station every half-mile. Eighty pound steel will be used and a speed of 35 miles an hour maintained. The system will cost, it is estimated, approximately yen 42,000,000 or yen 800,000 per mile. The President of the Tokyo Railway states that the long distance traffic amounts to 250,000 passengers daily now passing over his lines at a loss.

THE CHYODA GAS COMPANY.—The first call of yen 12.50 per share of this company is to be paid during the present month and the company expects to be in a position to supply gas to Tokyo by the end of 1910.

THE SIAM ELECTRICITY COMPANY, LTD.—The following is an excerpt from the report of this company for the year ended December 31st, 1909:

	Ticals	Ticals
The gross profits for the year were		861,189.54
Which after deduction of Depreciation	289,094.13	
Debenture Interest	68,648.47	
Interest	2,676.77	
Bad debts written off	11,399.68	
General Expenses	40,290.97	
Expenses on Street Watering	9,372.98	
Working Account Automobiles	5,649.48	
And Insurance Fund	39,482.21	466,614.69
leaves a net profit of	Ticals	394,574.85
added to which the balance from last year	"	118,623.01
and transfer from Contingeney Fund	"	13,065.88
makes a total at the disposition of the Company	"	526,263.74
which it is proposed to distribute as follows:—		
Directors' Fees	Ticals	10,013.74
Redemption Fund	"	20,000.00
Dividend 12% on 25,000 shares = £10	"	396,250.00
Bonus for 1909—4 Ticals per share on 25,000 shares	"	100,000.00
	Ticals	526,263.74

"The year has been still less favourable than 1908 for our business, as for most other businesses in Bangkok. While receipts for light and power were maintained, earnings on our tramways, in spite of many improvements, went down by nearly 10 per cent.

The reorganization of the Power Station has cost Tcs. 214,171, this including the purchase of a Diesel motor and 750 kilowat generating plant. The provision of the street watering and fire protection plant cost Tcs. 75,254 odd. Accidents on the Bangkolem and Samsen lines cost Tcs. 2,602.82. The receipts on the Bangkolem line were Tcs. 529.144 and the number of car miles run 979,945, a decrease in receipts of Tcs. 43,548, and increase in car miles of 11,894, as compared with 1908. On the Samsen line the receipts were Tcs. 308,887 and car miles run 795,298, a decrease of Tcs. 45,320 and 77,221 car miles are compared with 1908.

Current sold to customers brought in Tcs. 755,381, an increase of Tcs. 1,176, and the number of lamps connected at the 31st Dec.—reduced to 16 c. p.—was 59,936 an increase of 7,881.

SIMLA ELECTRIC LIGHTING.—The Punjaub Government has granted the municipality of Simla a license to utilize electrical energy for street lighting at the Summer Capital upon the completion of the hydro-electric schemes.

DAIREN GAS WORKS.—The works of the South Manchuria Railway Company was expected to be open for service on March 20th. A license was granted by the Kwantung Government last month.

MUKDEN ELECTRIC LIGHT PLANT.—The following description of this plant is given by Vice-Consul F. D. Cloud:

"The Mukden electric-light plant was installed by the Chinese local government in connection with the government's provincial mint on October 1, 1909. According to the original plans the plant was to have been of only 5,000 lamps capacity. Recently, however, the management decided to enlarge the plant to 15,000 lamps, and has already placed orders for the additional machinery and materials. The total cost of the plant when completed will be approximately $165,000, American currency, of which amount an American firm will supply about $115,000 worth of materials and machinery. The entire installation has been under the supervision of an American engineer employed by the Chinese Government.

"The plant is affording a most satisfactory service and, for this part of the world, at very reasonable rates. The popularity of electricity among the Chinese as a means of lighting has again been fully demonstrated by the eagerness with which the inhabitants of Mukden are clamoring for lights.

"The following is a schedule of the new concern's lighting rates—flat-rate system—per month: Carbon filament lamps; eight candlepower, 54 cents; 16 candlepower, 90 cents. Metallic filament lamps: 20 candlepower, 90 cents; 30 candlepower, $1.34; 50 candlepower, $1.80; 80 candlepower, $2.24. Lamps will be paid for and owned by the customers. Wiring and pendant fittings will be installed for 23 cents each.

"Meter-rate system: Per kilowatt-hour (1000 watts for a period of one hour), 11 cents; meter rental, on bills less than $9, 45 cents per month. Ten lamps or more will be required for each meter. Wiring and fittings will be installed at cost price, and the material will be the property of the customers. The installation cost per pendant lamp will be from $1.35 to $2.25 each, varying as the distance between lamps increases and the number of lamps decreases.

"Discount on bills per month: Five per cent during the first five days of succeeding months; five per cent on all bills over $22; 10 per cent on all bills over $45; 15 per cent on all bills over $67."

TIBET-SZECHUEN TELEGRAPHS.—With the advance of the Chinese troops to Tibet the telegraph lines were extended and maintained and it is the purpose of the Board of Posts and Communications to construct the balance of the line and complete connections covering a distance of 2,000 li between these two points.

BAGUIO TELEPHONE SYSTEM.—The telephone system at the Summer Capital was opened the beginning of this month with eighty subscribers, forty of which belong to the Government exchange.

ADDITIONAL GENERATING PLANT FOR SHANGHAI.—At the annual ratepayers' meeting a resolution authorizing a loan of $140,000 for electric plant was adopted. The estimated expenditure to capital account in the electrical department of the municipality for the year is Tls. 319,355, of which Tls. 140,000 is to be spent for the generating plant and Tls. 170,000 for extension and enlargement of mains, house service connections, meters, etc. During the year 1909 the maximum load was increased by 600 kilowatts bringing the load to 3,000 kilowatts, or 24% over previous year. The increase for the present year will be on a larger scale than previously and two mixed turbines are now being built by Messrs. Howden & Co. of Glasgow and two alternators by Messrs. Siemens Bros. & Co. of Stafford and London. These mixed pressure turbines will increase the generating power by nearly 1,000 kilowatts without adding to boiler plant or require more coal. The total cost of production and distribution, according to Mr. Pierce, Chairman of the Electricity Committee, has been consistently lowered during the last three years from 10.73 cents in 1907 to 8.06 cents in 1908 and 7.28 cents in 1909 per unit. Last year power was supplied to motors aggregating 788 h.p., an increase of 258 h. p. over previous year, and the prospect this year indicates a greater increase in this direction.

PENANG TELEPHONE CONNECTION.—The Perak Chamber of Commerce submitted a petition to the Government asking for the installation of a complete telephone service connecting Penang with Singapore through the F. M. S. The cost is estimated at $220,000. The Government, however, finds that unless a guaranteed income is secured, it will be unable to accede to the Chamber's wishes.

YUNNAN TELEGRAPHS.—Chaot'ong, Yunnan, has been linked to the main telegraph line connecting Yunnanfu and Szechuan. Heretofore this point was distant over three days' journey from a telegraph office.

THE JAPANESE MONOPLANE.—This machine, named after the inventor, Mr. Morishita, is reported to be a monoplane with two wings. The wings are 15 feet long and 2 feet 5 in. wide and the plane measures four feet and five inches at its longest point. This model will be increased to three times its size and operated by a 50 h. p. motor so as to provide a speed of 60 miles an hour carrying three persons.

PUBLIC WORKS, DOCKS, WHARVES, BUILDINGS, ETC.

PHILIPPINE PUBLIC WORKS.—The following are the amounts under different heads of a total of ₱3,005,000 appropriated for public works in the islands during the year 1910-11:

Roads and Bridges, ₱1,500,000; ₱300,000 for the construction of special interprovincial roads; ₱300,000 for artesian wells; ₱100,000 for the construction of the new normal school building in Manila: ₱5,000 for the restoration of the Mactan monument to Magallanes in Cebu; ₱700,000 for port works, canals, contention walls and breakwaters in different parts of the archipelago; and ₱100,000 for the construction of new school buildings.

NEW CUSTOM HOUSE FOR CEBU.—The contract for the construction of the new custom house at Cebu has been let to a local contractor, the price being ₱172,000. Work will commence at once. The sum of ₱200,000 was appropriated in 1909 for this work.

DREDGING THE WEST RIVER.—The Chang-Chow Relief Works Bureau, an organization comprising a number of Chinese merchants, has purchased a dredger in Amoy, and it is now at work on the river between Chioh-be and Chang-Chow-Fu deepening the channel. The river between these two points during the dry season is not deeper than two feet and during the rainy season much damage is occasioned by floods. The work of dredging will not only provide a better channel for navigation, but greatly reduce the danger from floods.

ONE MILLION FOR PHILIPPINE SCHOOL HOUSES.—The Bureau of Education has completed plans for the expenditure of ₱1,000,000 in the construction of schools throughout the provinces during the next two years. This amount was made available in an appropriation by special legislation last year. The school buildings will range in cost from ₱3,200 to ₱12,000 each. Each municipality must subscribe one-third of the cost of the school in order to participate in the benefits of this fund.

IRRIGATION IN INDIA.—The appropriation for expenditure on productive works for the year 1910-11 will reach £1,133,300. The total capital outlay at the end of 1910-11 will be £30,225,800. The actual area irrigated during the year just closed amounted to 21,500,000 acres, while there are 56,601 miles of main and branch canals constructed to command 47,396,400 acres. Besides these works there are now 44 projects either under construction or awaiting sanction and are designed to irrigate 6,850,000 acres and to cost when completed at least £30,330,000.

TOKYO MUNICIPAL BUDGET.—The total for the year is placed at yen 14,185,317, of which yen 1,310,478 is to be expended on water works; yen 643,000 on drainage, and yen 2,455,175 on miscellaneous city improvements.

ANDERSON BRIDGE, SINGAPORE, OPENED.—The ceremony of opening this structure to public traffic took place March 12th. It cost up to the date of opening $365,000 and when entirely completed in conformity with the plans, the cost will reach $425,000. Mr. Pierce, the Municipal Engineer, drafted the plans and the contractors were the Westminster Construction Company, Ltd., and Messrs. Howarth Erskine Ltd. The cost of the bridge was divided between the municipality of Singapore and the Straits Government with the exception of £3,000 subscribed by the Tramway Company. His Excellency Sir John Anderson, K.C.M.G., Governor and Commander-in-Chief in whose honor the bridge is named, was present at the opening.

STRAITS SETTLEMENTS PUBLIC WORKS.—Reviewing engineering in the colony *Engineering* says that a report recently issued by the Colonial Office states that good progress has been made with the harbour works, and details are given of some of the operations, a total £45,934 (the equivalent of $393,654) having been paid to the contractors during the year for work done during 1908. The total number of men employed was 1388, including 130 Europeans. Progress was made during the year with the new Lagoon Dock and the reconstruction of the wharves at Tanjong Pagar. Tenders for this work were received in 1907, and Messrs. John Aird and Co.'s tender of £968,700 was accepted. The wet dock is to have an area of 24½ acres, providing 3,837 ft. of additional quay-wall, with a minimum depth alongside of 30 ft. The various sections of the work are being rapidly pushed forward. The plant and appliances provided by the contractors are most complete and leave nothing to be desired, and it is expected that the rate of completion of the permanent works will increase rapidly. Three prominent contracting firms are now at work in Singapore under contract with the Government—viz., Sir John Jackson, Limited, Messrs. John Aird and Co., and Messrs. Topham, Jones, and Railton; while the Westminster Construction Company is also carrying out contracts with the Singapore Municipality for the construction of a new reservoir at Kabang, filter-beds and a clear-water tank at Woodleigh, and have completed their contract for the abutments of the new bridge at the mouth of the Singapore River.

BOMBAY PORT WORKS.—The Budget estimates of the Bombay Port Trust for 1910-11 provide for a total expenditure on Capital account of Rs. 1,08,67,000 under the following main heads:—(1) New Works (ordinary), Rs. 11,17,000; (2) New Docks Construction, Rs., 69,53,000; and (3) Mazagon-Sewri Reclamation, Rs. 27,97,000. Under New Works (ordinary) we note the following items as provided:—New Hopper Barge, Rs. 1,75,000; New Priestman Dredger, Rs. 49,000; New Dredger for dredging basins, Rs. 1,50,000; Four Hopper Barges, Rs. 1,50,000; New Barge for explosives Rs. 3,500; New Portable Engine for the Workshops, Rs. 9,000, and New Tug to assist vessels in the Docks, Rs. 67,500. Under New Dock Construction:—Wet Dock Machinery—Sluice Machines; Capstans, Ladders, etc., Swing Bridge and Machinery, C. I. Pipe Culverts and Sundries, Rs. 50,000. Amongst the items of expenditure on Revenue Account, we note a sum of Rs. 3,300 for providing Electric Lights and Fans in the Docks Cash Office.

AMALGAMATION OF YOKOHAMA DOCKS AND WAREHOUSES.—On April 1st, the Yokohama Dock Company assumed charge of the business of the Central Warehousing Company as the result of the amalgamation of the interests of the two companies.

EXTENDING YOKOHAMA HARBOR.—The Yokohama Municipality is considering an extension of the harbor by constructing a series of breakwaters from Honmoku Promontory to the Tsurumi River near Kanagawa.

PORT ARTHUR WATER SUPPLY.—A project is being considered by the Kwangtung Government to increase the water supply by tapping a water base at Takushan about five miles northeast of the town at a cost of yen 50,000. At the present time the supply is secured from the River Lung and is only sufficient to supply the needs of a population of 15,000. The new scheme will increase the supply to accommodate an additional 10,000.

MANILA STREET PAVING.—The total area of macadam for the last fiscal year was 1,377,939 and the area covered with blocks is 19,184 square meters. The Tasmanian block pavement in the Escolta has been entirely removed and work in substitution of first grade molave block is still under way on Rosario. Experiments are being made with concrete block of superior quality with apparent success. Sheet concrete has proved satisfactory so far in one instance.

KAPAR DISTRICT WATER SUPPLY.—At a meeting of the Rubber Growers' Association in London in February, the chairman, Mr. Alexander Bethune, reported progress on this enterprise so necessary to the rubber plantations near Klang. The scheme is to form a catchment of 74 acres in Sungei Buloh forest reserve with a capacity of 90,000,000 gallons and to run a nine inch pipe four miles to the Sungei Binjei Road at a point about six and one-half miles from Klang. The estimated cost would be about $350,000 and would supply about 10 gallons per pound of rubber and 10 gallons per coolie based on estimates of crop for 1916. According to the best information this supply could be arranged under the proposed scheme at about 50 cents an acre. The members of the Association seem satisfied with this proposal which is expected completed in two years.

SHIPBUILDING, MERCHANT MARINE AND FISHERIES

NIPPON YUSEN KAISHA AND MANCHURIAN TRADE.—The Sagami Maru was placed on the run from Kobe last month for Dairen to carry through cargo to connect with the South Manchuria Railway. The company is prepared to issue through bills of lading to Liaoyang, Mukden, Tiehling, Kaiyuan, Changchun, Kwangchengtsu and Chienchinchai. The following lines will carry shipments as follows: Yokohama-North China, semi-monthly from Yokohama; Kobe-North China, weekly from Kobe; Kobe-Korea-North China, every four weeks from Kobe.

Motor Boats in Siam.—Consul Hansen of Bangkok advises foreign manufacturers of motor engines to establish boat building yards at Bangkok and import only the machinery. The yard could be utilized for repairs and assist greatly in extending the motor boat trade. Chinese boatbuilders are available at small wages and with foreign supervision would prove most satisfactory. He also points to the necessity of expert information on motor boats so that the Siamese would be made familiar with operation. At the end of 1908 there were 150 motor boats in use in Bangkok, and that number has practically doubled by this time. The Germans and British have the bulk of this trade. There are two passenger motor boat companies in Bangkok representing capital to the amount of $180,000 gold.

Messageries Maritimes Company.—Under the new agreement with the French Government, the latter will guarantee a loan of francs 25,000,000 to the company and the latter is authorized to construct several new vessels in foreign countries to add to its equipment.

Royal Packet Bangkok-Java Run.—The announcement has been made that this company will run a regular line of steamers between the Siamese capital and Java. Messrs. Diethelm & Co., Ltd., have been appointed agents at Bangkok.

Monthon Pearl Fisheries.—The Government has closed the Chumpawn oyster beds as they have been generally depleted. In fishing for shells few divers are used, the shell being extracted from the shallow water by means of prongs.

The Russian Volunteer Fleet.—The subsidy for the different branches of this fleet of vessels amounts to about roubles 1,600,000 annually. Of this roubles 600,000 go to the European-Far East Service; undertaken transit dues Suez, roubles 1,000,000 and between Shanghai and Siberian Ports, roubles 10,000.

New Steamers for the N. Y. K.—This company has made arrangements for the construction of four new steamers from 8,000 tons to 10,000 tons to be built by the Mitsu Bishi and Kawasaki Dock Yards. A vessel, each of 8,000 and 9,000 tons, will go on the American line and one each of 8,500 and 10,000 tons for the European line.

Japanese Marine.—Mr. Uchida, Chief of the Mercantile Marine Bureau, is quoted as follows:

"The total amount of ships built in this country during 1908 was 68,000 tons. This, however, did not show the fullest capacity, which the Government believed to be fully 100,000 tons. It was the principle of demand and supply that was at work here as well as in other lines of industry, imported ships discouraging the building of ships at home. As the home shipyards were already turning out passenger ships, which required greater labour and skill than cargo ships, the construction of the latter class of ships would soon be growing.

"The tonnage of ships imported in times of peace amounted to 33,000 tons or thereabouts."

Philippine Cableship Rizal.—This vessel, recently put in commission by Director Helm of the Bureau of Navigation, was built in Sunderland in 1896 and called the Mailaya. It is 313 feet in length, 43 foot beam, and 14 foot draft. It is equipped with triple expansion engines and has a capacity of 12.5 knots. Its tonnage is 2744 gross and 1725 net. Two electric motors with a thousand 16 candle power light capacity and an ice machine with a daily capacity of 1.5 tons are installed. The vessel is equipped with cable tanks carrying several miles of cable.

American Mail Subsidy.—The senate committee on commerce reported favorably on a bill providing for an increase in the mail carrying appropriation as affecting lines between America and Japan, China, Philippines, Australia and South America.

North German Lloyd Report.—Cable advices from Berlin is to the effect that the profit for the year amounted to 32,899,000 marks.

New Wharf Dues at Yokohama.—The new regulations require the payment of three sen per registered ton for every 24 hours, a fraction of a ton will not be calculated and any part of a day will be counted as 24 hours.

Contract for Chinese Training Cruiser.—Advices from Peking are to the effect that Messrs. Vickers, Sons, and Maxim have secured an order for a protected cruiser to be used as a training ship for cadets and to be completed by September, 1911. A Chinese crew will bring the vessel out from England. The price is said to be £400,000, and the vessel is to have a displacement of 2,400 tons.

China's First Squadron of New Warships.—It is reported from Peking that the navy department has practically decided upon ordering two cruisers, two coast defence vessels, two dispatch boats, six torpedo destroyers and four torpedoers to form the first squadron and nucleus of the new Chinese Navy.

Pacific Shipping.—With the opening of the Western Pacific the Lloyd Steamship Company will put six steamers to connect with Japan and the San Francisco Steamship Company will put four steamers on the San Francisco-Panama line.

Motor Boats for Chinese Waters.—A writer in the *London and China Express* divides the desirable motor boats used in coasting and river trade into three classes viz. the electrically driven; the petroleum; the gasoline and the suction gas producer class. He believes the electrically driven the most convenient, but most expensive, and recommends the establishment of charging stations along any route to reduce the expense and make it possible to maintain a supply. Of the petroleum driven boats, he recommends the crude oil engine for larger craft. The suction gas is recommended for craft requiring from 40 h. p. to 200 h. p. The cost of petrol which is used for all the small craft is against the use of gasoline motor, yet for the present it is the most popular. They are used largely in driving small craft up to large launches. Were it not for the cost of gasoline this engine would be the most popular.

Nippon Yusen Kaisha Sells Old Vessels.—This company has decided to weed out all their old vessels and have ordered the sale of the following steamers: the *Ryojun* (4,805 tons), the *Kagoshima* (4,404), the *Yamashiro* (2,580), the *Omi* (2,501), the *Yokohama* (2,372), the *Nagato* (1,884), the *Fushiki* (1,839) and the *Hyogo* (1,428).

Australian Dreadnoughts Contract.—The contract for the war vessels for the New Zealand and Australian Governments have been secured by Messrs. John Brown & Company, Ltd., of Sheffield and Clydebank, and the Fairbank Company, respectively. The price is approximately £2,000,000 each, and displacement 18,000 tons.

Nippon Maru's Speed Trials.—This vessel of the Toyo Kisen Kaisha's fleet built in 1898, the contract speed being 17 knots, made her speed trials at Nagasaki last month and in six official runs made a mean speed of 17.49 knots. The maximum speed was 17.912 knots.

New Blue Funnel Liner Protesilaus.—This vessel, built by Messrs. R. & W. Hawthorne, Leslie & Co. of Hebburn-on-Tyne, is now on its maiden voyage to Seattle. She is practically a sister of the S. S. Teucer with an increase in beam of two feet, but is believed to be a faster vessel. She made 15 knots between Glasgow and Liverpool drawing 23 feet. She sailed from Liverpool on February 6th and is due at Seattle on April 16th from which port she will sail on May 18th.

Dairen Cod Fisheries.—The fishing operations now extend to a distance of 100 miles out to sea towards Shantung. A fleet of 20 fishing boats from Laohutan are now operating besides the usual number from Dairen.

The Bangkok Dock Company, Ltd.—The directors' report for the year shows a net profit of Ticals 47,759.06 on a capital investment of Ticals 800,000. A five per cent. dividend was declared.

Compulsory Pilotage at Dairen.—The officials of the South Manchuria Railway have drafted regulations for this purpose and submitted them to the Kwantung Government for approval. The proposed rates are Yen 10 for vessels from 500 to 1,000 tons; Yen 15 up to 2,000 tons; Yen 25, 3,000 tons; Yen 35, 4,000 tons; Yen 45, 5,000 tons; and Yen 55 for upwards of 5,000 tons.

MINES, MINERALS AND THE METAL TRADE

New Penang Mining Syndicate.—The prospectus of the Sungei Kinta Prospecting Syndicate with a capital of $100,000 in $10 shares was issued last month. The purpose of the company is to take over the Selensing for $60,000 and to develop the property.

Raub Gold Returns.—For the four weeks ended February 28th 1,518 oz. were realized with 82 oz from cyanide treatment and 522 oz. annual clean-up.

Siam Tin Concessions.—Consul Wood of Monthon Chumpora writes that there are at present only two tin mining concessions in the hands of European companies. One of them, a tin-mining concession of considerable extent at Kanchanadit, is held by a German syndicate, and the other, a concession to work wolfram in the Island of Koh Samui, by a British company. This latter company have lately suspended working. Some few years ago a British company held a concession to work tin in Langsuan, but were forced to stop work owing to the enormous expense which was found to be involved. Langsuan is, however, full of tin, but unfortunately, owing to scarcity of water and other causes, it is very difficult to extract it. The district of Lampan to the south of the Monthon is also rich in tin. At present about 200 Chinese and Siamese miners hold licences to work tin, which most of them do in a more or less intermittent way and with varying success.

Consul Hansen, of Bangkok, says: "Tin holds the chief place in Siam's metal resources, and is found throughout the Siamese portion of the Malay peninsula. The island of Junk-Ceylon (Tongkah) furnishes nearly one-half of the tin of the country. The output of tin ore from the island for 1908 was 3,713 tons, valued at about $1,670,385; and that of melted block tin 2,392 tons, valued at $1,586,105. It is said this province of Siam is an immensely rich mining country, only waiting to be developed. Siam's average annual production of tin is estimated at about 5,175 tons, valued at $4,110,000. English mining companies and the Chinese are the chief workers for tin. Gold is said to stand second to tin in the mineral resources of the country, but so far its working has not proved profitable. Copper and lead mining has also proved a failure.

"The difficulties in mining in Siam have been the remoteness of the mines and the enormous cost of transportation, but these conditions are being overcome by the extension of railways north and south."

Tin Mining in Malaya.—Quoting from the *Australian Mining Standard* we find that ordinary alluvial miners are not supposed to have made good profits, generally speaking, during 1909. "The old established hydraulic mines have made good profits, generally speaking, and some new ones, notably the 'Tekka,' have come into prominence. A special feature has been the recent establishment of new mining plants at various centres. The power has been mainly suction gas and electricity, either working gravel pumps on pontoons or pumping water direct. It cannot be said that these plants have been an unqualified success, and a good deal of sympathy is due to the promoters who have been plucky enough to invest

in them. It is to be hoped they will be adjusted to meet the local conditions. Sea-dredging has been tried. One dredger at Tongkah (Siamese Malay States) seems to have done well, but a similar experiment off the coast of Malacca has not proved successful, the plant used apparently not being suitable. There are cases of lodes being worked at a profit.

BANKA TIN MINES.—Klabat Bay has been chosen by the Dutch Government as the site for its smelting works from which the tin will be shipped to Holland. The Government estimated an expenditure of 70,000 florins in transportation for Chinese coolies returning to China from the mines during the winter.

PARKS IRON WORKS AGENCY, SHANGHAI.—Messrs. Davy Bros. of the Parks Iron Works Company, Sheffield, have opened a branch at Shanghai. This firm equipped the Hangyang Steel Works with its machinery and supplied the forging presses for the Japanese arsenals and dockyards.

F. M. S. TIN EXPORTS.—The total exports of block tin and tin ore for January and February, this year, amounted to 130,151,000 pikuls or about 11,000 in excess of the same period, 1909.

ACHEEN OIL FIELDS.—The Bataviasche Petroleum Company is working petroleum fields in this section known as Peureulah. The disturbed conditions of that territory interfere with prospecting.

THE TAIYE CEMENT COMPANY.—Advices from Hankow are to the effect that this company with a capital of Tls. 3,000,000 has been floated with one half of the stock paid up. The operations of the company will be under the control of the Department of Agriculture, Industry, and Commerce and has secured a 15 year license from the province of Hupeh with exception from taxes for five years. The company has arranged a loan of Tls. 360,000 with the Mitsu Bishi.

BIG CONTRACT FOR BURMA OIL.—The East India Railway Company has placed an order with the Asiatic Petroleum Company for the supply of 280,000 gallons of Swan Brand mineral oil to be used in the manufacture of gas.

BURMA MINES LIMITED.—The report for February contains the information that 971 tons of lead and 4,309 oz. of silver were produced from a total smelted of 4,165 tons of slag and ore. Two new boilers have been installed and a new charge hoist put in use. A second locomotive has been added to the railway equipment and the trestle inside the yard and the siding of the BurmaRailways outside have been finished. The water jacks and iron work for the new furnace is expected in May.

THE PEKING SYNDICATE.—The announcement is made that the new board of directors will inaugurate a campaign for the investigation into the wealth of the deposits or mineral covered by the Syndicate's concessions. The coal production is increasing but the petroleum and iron deposits have not been developed.

JAPAN'S COAL EXPORT.—The total export of coal from the ports of Moji, Wakamatsu, Karatsu, Nagasaki, Kuchinotsu, Miike and Suminoye for the year 1909 aggregated 8,975,-328 tons representing the following export by companies: Mitsui Bussan Kaisha, 3,947,487; Mitsu Bishi Company, 1,293,782; Yasukawa and Matsumota, 466,939; Furakawa Company, 311,081; Mineji Mining Company, 182,733; Buzen Saitan Kaisha, 105,592; Mayasaki, 81,580; Futaba, 61,268; Ohashi, 60,054; and others, 2,464,817. The total falling off compared with 1908 amounted to 380,000 tons approximately, while the Mitsui Bussan Kaisha, the largest exporters, increased its export from all of these ports by 100,000 tons compared with the previous year.

KOREA'S MINERAL PRODUCTION.—The following is the official report of the mining industry in Korea:

	Personnel.	Number of Mines	Area tsubo (3.9 sq. yds.)
Gold	277	116	56,361,000
Silver	10	7	1,847,000
Copper	42	29	14,021,000
Mercury	2	2	420,000
Graphite	173	109	31,007,000
Coal	69	34	16,749,000
Zinc	5	3	1,702,000
Others	165	89	45,546,000

The total account of gold obtained in Korea in 1908 and 1909 respectively was about *yen* 5,000,000 and *yen* 6,112,000 in value. The annual production of gold from the mines at Unsan is about *yen* 3,000,000 in value according to the *Seoul Press*, and that of Synnan, which is worked by Mr. Soichiro Asaro, is *yen* 280,000, while the annual output of gold and alluvial gold taken from the mines at Chiksan amounts to *yen* 120,000 and *yen* 58,000 respectively.

JAPAN'S MINERAL OUTPUT.—The official report shows an increase of from six to twenty per cent. compared with 1908 on the production of the chief minerals. The following is an official résumé of the production:

	Amount of output.		Value. Yen.
Gold	6,208¼	*kin*	4,966,600
Silver	213,335⅜	"	4,517,590
Copper	71,633,156	"	22,989,540
Lead	5,360,658	"	447,615
Bismuth	620	"	1,508
Tin	29,730	"	23,959
Antimony	335,013	"	46,080
Quicksilver	845	"	1,098
Zinc	37,949,500	"	310,798
Pig-iron	73,757,187½	"	1,652,161
Steel	9,810,962¾	"	423,834
Sulphide	45,110,093¾	"	137,135
Mangan	11,011,887½	"	56,381
Arsenic	12,064	"	923
Phosphorous	2,267,812½	"	16,657
Blacklead	473,586	"	27,657
Coal	14,973,617	tons	61,092,358
Peat	94,300	tons	165,183
Kerosene	1,654,520	*koku*	6,369,925
Chan	5,650,425	*kin*	72,325
Sulphur	59,138,150	"	733,251
Total			104,052,086

NOTE.—Kin = 1.6 lbs. Troy. Koku = 39.7 gals.

CRUDE OIL FOR JAPANESE RAILWAYS.—From April 1st, the Railway Board has been using crude oil for fuel on the Central Eastern line in locomotives specially adapted for oil burning. This line was chosen on account of the many tunnels passing through which the passengers have heretofore been greatly annoyed by the accumulations of coal smoke.

JAPAN-KOREAN MICA COMPANY.—A meeting of this newly organized company was held in Korea the latter part of February for the purpose of planning a campaign for the development of the mica deposits at Tansen. The capital of the company is Yen 310,000.

BURMA ANNUAL MINING REPORT.—During the year there were 48 new prospecting licenses issued, 3 mining leases, and 14 exploring licenses. Fifty per cent. of the applications referred to petroleum or mineral oil. The yield of petroleum for the year was 173,000,000 gallons, an increase of 24,000,000 compared with the previous year. Three gold dredgers of the Burma Gold Dredging Company were active on the Irrawady above Myitkyina and a fourth in the 'Nmaikha during the year. The total gold saved during the year amounted to 7,950 ounces. The total output of coal was 46,000 tons approximately. Greater activity is promised this year. The period covered by the report is for the year ended March 31st, 1909.

IMPORTANT AMERICAN-CHINESE STEEL CONTRACT.—A contract has been signed between the Robert Dollar Company and the Western Steel Corporation of Seattle, represented by Mr. Robert Dollar and H. E. Law, and the Han-Ping-yeh Company of Hankow, represented by H. E. Sheng Kung-pao and Dr. V. K. Lee, whereby the Western Steel Corporation undertakes to act as agents for the Han Peng-yeh Company in the United States and enters into a contract with the Chinese Steel Company to purchase a large order of raw material. The Han Ping-yeh Company undertakes to represent the Western Steel Corporation in China for the sale of manufactured steel product. This contract is considered one of the most important that has been concluded affecting trans-Pacific trade for many years.

THE BRITISH BORNEO PETROLEUM SYNDICATE.—The British *North Borneo Herald* has the following to say regarding the operations of this company in British North Borneo: "Mr. Chittenden, General Manager of the B. B. Petroleum Syndicate, before leaving for England recently, kindly supplied us with information from which we take the following:—

"The B. B. Petroleum Syndicate, Ltd., have applied for a lease to work petroleum on certain lands on the West Coast, the boundaries enclosing all the territory lying between Nosong Point and Mempakul and stretching back as far as the Railway. We mentioned in an earlier number that drilling machinery had already been ordered, in fact, we know that Mr. Chittenden came out this last time with the express intention of drilling."

YENCHANG PETROLEUM FIELDS.—An analysis of the oil found in this section, according to Chinese papers, is of a superior quality and a company with a capital of Tls. 3,000,000 has been organized to work them. One merchant of Szechuan has subscribed a third of this amount.

FINANCIAL, COMMERCIAL AND MISCELLANEOUS

THE SHANGHAI GAS COMPANY, LTD.—The report of the directors for the year shows receipts Tls. 693,440.27 against Tls. 666,719.22 the previous year, an increase of Tls. 26,721.05, and the total expenditure amounted to Tls. 443,557.75, an increase of Tls. 18,031.00 due to the high cost of carbonizing material. The net profit amounted to Tls. 232,059.60, and after deducting interest and other charges left Tls. 160,336.04 available for appropriation at the annual meeting when a final dividend of Tls. 3.50 was directed paid.

THE FUJI SPINNING COMPANY LOAN.—This company has concluded a loan for yen 3,000,000 from five banks headed by the Mitsui Company.

TAI CHING GOVERNMENT BANK.—Advices from Peking are to the effect that, in the middle of March, the total deposits in this institution had reached Tls. 20,000,000.

JAPAN'S COMMERCE.—Vice Consul General Babbit of Yokohama writes that the exports from Japan for the first nine months of 1909 exceeded the value for the corresponding period, 1908, by $8,921,677 gold and that the imports for the same period showed a decrease of $20,-873,222. The total foreign trade for the same period was less than that of the same period, 1908, by $11,950,544, and the excess of imports for the nine months, 1909, was less than the excess for the same period in 1908 by $29,793,899.

PROVINCIAL BANK, MUKDEN.—The statement for the last Chinese year contained the information that this institution had on hand Tls. 380,000, $85,000 and 3,200,000 pieces of copper cash while it had $3,000,000 of silver notes in circulation.

AMOY FLOUR MARKET.—The importations for the quarter ended September 30th, 1909, according to Consul Arnhold, included 746,133 pounds of American flour as against 6,415,733 for the corresponding quarter, 1908, and the importations of Chinese flour for the same period, 1909, was 4,719,466 pounds compared with 746,133 pounds for the corresponding period, 1908. He explains this increase in imports of Chinese product and decrease of the American by the high prices ruling in the United States and the increase of the wheat growing area in the Yangtse Valley. The present profit on a fifty pound bag of Shanghai flour is ten cents, and Mr. Arnhold believes that this margin would stand sufficient depreciation for Chinese flour to hold the market it has won.

SIBERIA'S TIMBER SUPPLY.—The total area of forest land, according to the Russian Forestry Department's estimates, is 509,000,000 acres. Pine is found in the Upper Amur besides spruce and larch. In the maritime province to the south, cedar abounds. Consul Maynard of Vladivostock gives a description of the forests and states that the tax varies from one-half to seven cents gold per cubic foot according to the class of timber. The forests are managed by a local office of the department of the domain with a head office at Habarovsk. Up to 1907 no foreign capital was engaged in this industry, but during the year rights were granted an Australian firm.

SUMATRA TOBACCO.—The total sales of Sumatra tobacco in Amsterdam for the year 1909 amounted to 271,353 bales, at an average of 20 cents gold a pound, against 272,463 bales at 18.7 cents in 1908. Sales of Sumatra tobacco by Amsterdam to the United States for 1909 were valued at $5,860,400 against $5,457,167 in 1908.

CANTON TANNERY AND SHOE FACTORY.—This new enterprise is underway and will be conducted under British supervision. It is reported that the promoters have secured the promise of a contract to supply the military and naval forces of Kwangtung with equipment.

AMERICA'S MINIMUM TARIFF RATES.—A proclamation has been issued by President Taft extending the minimum rate of tariff to Johore, Straits Settlements, Malaya, Borneo, Sarawak, Hongkong and Weihaiwei.

THE MERCANTILE BANK OF INDIA.—The directors have recommended a dividend of six per cent. and to add £25,000 to reserve making it £285,000: £2,000 to officers' pension fund and to carry forward £26,000.

COMPAGNIE GENERALE DES TABACS DES PHILIPPINES.—The report for year 1908 shows a gross profit of ₱1,182,766 and a net profit of ₱44,253. Prospects for 1909 with free trade are very bright.

THE RUSSO-CHINESE BANK.—The fusion of the Northern Bank with this bank with a capital of 35,000,000 roubles is reported consummated.

DAIREN FOREIGN BOARD OF TRADE.—The rules and regulations of this proposed institution are being prepared to submit to the local authorities with a request for permission to organize. Mr. E. U. Reid, the local manager of Messrs. Jardine, Matheson & Co., representing the promoters, has been active in advancing the project.

MANCHURIA BEAN MILL TRUST.—An organization has been effected by 40 representative mill owners for the purpose of exploiting the bean cake market.

THE CHARTERED BANK.—The directors have recommended a dividend of 15%; addition to the reserve of £25,000, bringing it up to £1,600,000, and to carry forward £124,168.

HONGKONG AND SHANGHAI BANK ENTERPRISE.—This institution is arranging to instal a branch at Changchun.

KOREAN FOREIGN TRADE.—The customs report the total of foreign trade for the months of January and February at yen 6,583,263, an excess of yen 1,087,279 of imports over exports and a total increase of yen 559,339 over the same period 1909.

AMERICAN BUSINESS MEN TO VISIT CHINA.—Representatives of the Chambers of Commerce of Los Angeles, San Francisco, San Diego, Portland, Seattle, Spokane and Tacoma are to visit the East. Mr. Robert Dollar, who recently returned to Shanghai, has been interested in getting the party together and it will sail in August.

F. M. S. RUBBER RETURNS.—The report for February shows returns aggregating 323,607 pounds.

THE MANILA MERCHANTS' ACSSOCIATION.—The following officers were elected for the year 1910: Mr. Simon Erlanger, president; Mr. Frank L. Strong, 1st vice president; Mr. Martin Egan, 2nd vice-president; Mr. W. B. Poland, 3rd vice-president, and Mr. Milton E. Springer, secretary-treasurer. Upon retiring, Mr. D. Earnshaw jr., the former president, urged that the attention of the association should be directed to the advancement of agriculture as the basis of permanent prosperity.

NEW RUBBER COMPANIES.—The Lewa Rubber Estates, Ltd., capital, £250,000, £1 shares; New Serendah Rubber Co., Ltd., capital, $600,000, $2 shares, issue 125,000 shares; Kinatan Rubber Co., Ltd., (Borneo), capital £130,000, £1 shares, issue 80,000 shares. The total registered capital for the year 1909 amounted to £13,736,014, or more than the aggregate for the three previous years.

FORMOSAN TEA PRODUCTION.—Consul Reat of Tamsui reports that the total Oolong tea crop for 1909 amounted to approximately 22,000,000 lbs., of which 16,500,000 goes to the United States, 1,000,000 to England and 4,000,000 is used for Pouchong, a scented tea for native trade in the Straits. He estimates the returns of Oolong tea per acre at about 280 pounds.

JAPAN'S COTTON EXPORT.—The total value of cotton export for the year 1909 amounted to yen 17,670,000 or an increase of 20% over the previous year. China's purchases alone amounted to yen 10,000,000.

CHINA'S PROVINCIAL FINANCES.—The total revenue and expenditure in the provinces amounted to Tls. 662,200,000 and Tls. 582,500,000 respectively.

CEYLON AGRICULTURAL ACTIVITY.—Consul Magelssen of Colombo gives the following figures on agricultural industry in Ceylon:

"There has not been much new planting during the past year, although an addition of 11,606 acres to the cultivated acreage is shown, but perhaps much of this may be due to more precise rendering of estate returns. The total area of 2,091 plantations and planting properties comprised 957,749 acres. The total area of 1,731 plantations in cultivation was 625,629 acres. In detail the total approximate acreages were: Tea, 389,600; cacao, 30,016; rubber, 179,956; coffee, 950; cardamons, 7,738; cinchona, 196; camphor trees, 1,200; grass (cultivated), 3,500; of annatto, coca, kola, ramie, vanilla, pepper, cloves, citronella grass, divi-divi, croton, castor oil, aloes, tobacco, and cotton, 7,000; cocoanuts, arecas, nutmegs, fruit trees (on the cacao, tea, and other plantations) 22,500; and of fuel, timber, sapan, and kapok (on tea, cacao or other plantations) 6,050."

STRAITS MORTGAGE AND TRUST COMPANY'S BIG DIVIDEND.—This company declared a final dividend of 5% with a bonus of 40% making 50% for the year.

TRADE OF KIAO-CHAU.—The trade of this port increased from £2,485,249 in 1907-08 to £3,250,944 in 1908-09. There were 511 ships with a tonnage of 670,085 against 432 vessels and 519,292 tonnage the previous year.

STRAITS SETTLEMENTS TRADE.—The imports for the last quarter 1909 include $58,000,000 (Straits Cur.) to Singapore; $23,000,000 to Penang and $1,000,000 to Malacca. The total exports from the three settlements amounted to $47,000,000, $21,250,000 and $1,200,000 respectively. The exports of rubber from Singapore alone amounted to $3,000,000, an increase of $1,000,000. Penang fell off for the quarter compared with the corresponding quarter 1908, but Singapore made a total gain of $5,000,000.

FORMOSAN FOREIGN TRADE.—The total in exports and imports for the year 1909 amounted to yen 84,730,000 and the output of main staples included yen 4,720,000 in rice, yen 18,100,000 in tea, yen 2,930,000 in camphor.

JAPAN'S SOLDIER'S PAY.—A second class private under the increased pay bill will receive yen 1.50 a month. The following is a table of the pay received by the non-commissioned officers and privates:

Rank.		*Present Pay. Yen per month.*	*New Pay. Yen.*
Sergeant Major	(a)	28.70	35.875
,, ,,	(b)	23.70	30.625
,, ,,	(c)	18.70	23.375
Sergeant	(a)	9.90	12.375
,,	(b)	8.40	10.500
,,	(c)	6.90	8.625
,,	(d)	6.00	7.500
Corporal	(a)	4.50	5.625
,,	(b)	3.70	4.575
First-class Private		1.50	1.875
Second-class Private		1.20	1.500

IRRIGATION INVESTMENTS

The above is the title of an interesting brochure issued by Messrs. J. G. White & Co., Inc., of New York, Chicago, San Francisco and London from the pen of Ira W. McConnell, Chief Irrigation Engineer of the company. It directs attention to the standard value attached to mortgages upon agricultural lands in all sections of the United States and points out that the supply of public lands in humid regions are practically exhausted, thus necessitating the development of land hitherto considered valueless for agricultural purposes by irrigation. The author reviews the history of the occupation of available public lands in the humid regions and the campaign under way to make the arid regions fertile with the result that the latter supplied with proper irrigation facilities have proven of greater value on account of the greater production and fewer uncertainties in working than the former. This is due to more rigid control of crops, greater fertility from the conservation of plant food or soluble salts in the soil of irrigated regions, in humid regions they are carried off by the rains. Then there is the complete control of the water instead of the uncertainties of rainfall. The pamphlet goes into detail regarding the different forms of irrigation enterprises and points to the necessity of expert guidance and management so that settlers and investors may proceed in such a manner as to secure the best results.

Messrs. J. G. White & Co., Inc., are one of the largest contracting firms in the world, their operations covering every branch of engineering construction and monuments to their enterprise may be found in every country in the world. With respect to irrigation they make the following announcement:

"J. G. White & Company are prepared to furnish expert advice and to undertake the engineering, construction and management of irrigation enterprises at any stage in their development. They have a large staff of competent specialists whose records guarantee effective supervision of any enterprise which may be taken in charge. Special investigators are available for the preparation of reports calculated to show, as quickly as consistent with efficient examination, the possibilities of any given enterprise.

"The Company's resources and affiliations are such as to permit projects of merit to be taken up, financed, constructed and managed. Badly engineered or financed enterprises may be reorganized and placed upon a paying basis. Partially completed enterprises may be taken up and finished to the point of profitable production.

"The arid sections of the United States will offer for the next decade a most profitable field for investment. The opinion is expressed that such investments, properly placed, are sound and attractive. J. G. White & Company offer an organization of high efficiency as a means of investigating and perfecting such investments. Statements showing details of this organization and the experience of its members will be furnished on request.

Those interested in irrigation will find it to their advantage to consult this firm's staff of engineers and secure the benefit of their wide practical experience.

FAR EASTERN STOCKS AND QUOTATIONS

Courtesy of Messrs. Kadoorie & Co., Hongkong, April, 1909.

STOCK.	WHEN ESTABLISHED	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	AT WORKING ACCOUNT	DATE	LAST DIVIDEND.	Approximate Yield per cent per annum at Present Quotation	CLOSING QUOTATIONS
BANKS.											
Hongkong & Shanghai Banking Corporation	1865	$15,000,000	120,000	$125	$125	g £1,500,000 s $15,500,000 i $250,000	$2,028,988	31-12-09	£2. 5/- for half year ending 31-12-09, @ ex 1/9½ = $25.11	4	960 sellers £89 5/-
National Bank of China, Ld.	1891	£699,475	10) 99,925	£7	£6	e £4,079 $400,000	$34,167	31-12-09	$2 (London 3/6) for 1903	....	$76 buyers
MARINE INSURANCES.											
Canton Insurance Office, Ld.	1881	$2,500,000	10,000	$250	$50	$1,560,000 j $254,583 u $302,799	Nil.	31-12-08	$10 for 1908	7	$170 buyers
North China Insurance Co., Ld.	1903	£150,000	10,000	£15	£5	g £125,000 s Tls. 225,000 u Tls. 335,253 f Tls. 146,586	Tls. 207,572	30-6-09	Final of 7/6 making 15/- for 1908.	....	Tls. 115
Union Ins. Society of Canton, Ld.	1867	$3,100,000	12,400	$250	$100	s $3,000,000 g £90,000 f $192,248 j £105,249 u $682,609	$2,464,901	31-12-08	Final of $17 making $47 for 1907, and interim of $30 for account 1908	5½	$910 sales
Yangtsze Ins. Association, Ld.	1889	$1,200,000	12,000	$100	$60	$1,000,000 j $294,405 $199,234	$707,637	31-12-08	$12 and bonus $3 for 1907	7	$230 buyers
FIRE INSURANCES.											
China Fire Ins. Co., Ld.	1870	$2,000,000	20,000	$100	$20	$1,000,000 s $550,348 f $61,168	$438,406	31-12-09	$6 and bonus $2 for 1908	7½	$110 sales
Hongkong Fire Ins. Co., Ld.	1868	$2,000,000	8,000	$250	$50	$1,460,000	$426,218	31-12-09	$27 for 1908	8%	$337½ sales
SHIPPING.											
China & Manila Steamship Co., Ld.	1882	$750,000	1) 30,000	$25	$25		Dr $3,777	31-12-09	$4% for 1906	....	$7 buyers
Douglas Steamship Co., Ld.	1883	$1,000,000	20,000	$50	$50	$230,000 i $100,589	Nil.	30-6-09	$2½ for year ending 30-6-1908	....	$31 sellers
Hongkong, Canton & Macao Steamboat Co., Ld.	1865	$1,200,000	80,000	$15	$15	e $250,000 d. i. $627,500 f $103,545 $ 19,106	$20,766	31-12-09	Final of $1½ for 1909	7½	$30½ sellers
Indo-China Steam Navigation Co., Ld. (Preferred) Do. Do. (Deferred)	1882	m £600,000	2) 60,000 2) 60,000	£5	£5	i £148,891	£15,162	31-12-08	6/- for 1907 on pref. share only at ex. 1/9 11/16, $3.154	....	$68 buyers
"Shell" Transport & Trading Co., Ld.	1898	£ 2,000,000	2,000,000	£1	£1	£720,000 i £100,000	£192,994	31-12-08	3rd interim of 2/- per share (coupon No. 12) making in all 4/- for 1908, and interim of 1/- for account 1909	5%	92/- sales
"Star" Ferry Co., Ld.	1898 1900	$200,000	10,000 10,000	$10 $10	$10 $5	$65,000 i $48,980	$31,21	30-4-09	$1.00 50 cts. for year ended 30-4-09	4 3½	$26 sellers $14½
REFINERIES.											
China Sugar Refining Co., Ld.	1878	$2,000,000	20,000	$100	$100	e $350,000 r $56,848	Dr. $5858	31-12-08	$5 for year ending 31-12-08	3½	164 ex div. buyer
Luzon Sugar Refining Co., Ld.	1882	$700,000	7,000	$100	$100	none	Dr. $135,893	31-12-08	$3 for 1897	—	$29 sellers
Perak Sugar Cultivation Co., Ld.	—	Tls. 350,000	7,000	Tls. 50	Tls. 50	Tls. 100,000	Tls. 6,302	31-8-09	Tls. 10 for year ending 31-8-09	....	Tls. 850 sellers
MINING.											
Chinese Engineering & Mining Co., Ld.	1901	£1,000,000	1,000,000	£1	£1	d £215,000 h £12,289	£1,435	28-2-09	Final of 1/6 making 3/- for 09	7	Tls. 18
Headwaters Mining Co.	1908	₱600,000	28) 60,000	₱10	₱10				First year		₱10 buyers
Raub Australian Gold Mining Co., Ld	1892	£200,000	150,000 50,000	£1 £1	18-10 £1	£4,873	Dr. £2,191	31-3-08	No. 12 of 1/- = 48 cents	—	$6½ buyers
DOCKS, WHARVES AND GODOWNS.											
Fenwick (Geo.), & Co., Ld.	1889	$450,000	s 18,000	$25	$25	$42,986	Dr $7,421	31-12-08	$1½ for year ending 31-12-06	....	$10
Hongkong & Kowloon Wharf & Godown Co., Ld.	1886	$3,000,000	60,000	$50	$50	$550,000 t $31,993 i $40,000	$264,847	31-12-09	$2½ for 1909	5	$60 ex div. sellers
Hongkong & Whampoa Dock Co., Ld.	1866	$2,500,000	50,000	$50	$50	i $88,412 v $221,000	$132,765	31-12-09	Interim of $1½ for account 1909	..	$58 sales
Shanghai Dock & Engin'g Co., Ld.	1906	Tls. 5,570,000	13) 55,700	Tls. 100	Tls. 100	Tls. 1,000,000	Tls. 6,261	30-4-09	Interim of Tls. 2½ for account 1910	6½	Tls. 81 buyers
Shanghai & Hongkew Wharf Co., Ld.	1902	Tls. 3,600,000	36,000	Tls. 100	Tls. 100	b Tls. 697,257 r Tls. 50,000 e Tls. 125,000	Tls. 6,261	31-12-08	Final of Tls. 6 making Tls. 10 for 1908	7	Tls. 120 buyers
LANDS, HOTELS AND BUILDINGS.											
Anglo-French Land Investment Co., Ld.	1906	Tls. 2,500,000	3) 25,000	Tls. 100	Tls. 100	Tls. 35,000	Tls. 4,314	29-2-09	Tls. 6 for year ending 29-2-09	5½	Tls. 103 sellers
Central Stores, Ld.	—	$751,845	16) 50,123	$15	$15	n. $1,000	$24,641	31-12-08	$1.20 on old & 60 cts. on first new issue	....	$15 sellers
Hongkong Hotel Co., Ld.	1866	$600,000 $400,000	12,000 8,000	$50 $50	$50 $25	$648,975 r $14,088	$19,272	30-6-09	Interim of $2.40 old and 40 cents new for a/c 1909	—	$107½ sales $83½
Hongkong Land Investment & Agency Co., Ld.	1889	$5,000,000	50,000	$100	$100	e $250,000	$27,971	31-12-09	Final of $3½ making $7 for year ending 31-12-1909	6½	$101 sellers
Humphreys' Estate & Finance Co., Ld.	1887	$1,500,000	150,000	$10	$10	i $226,945 20) $25,856	$5,471	31-12-09	45 cents for 1909	7½	$8½ buyers
Kowloon Land & Bldg. Co., Ld.	1889	$300,000	6,000	$50	$30	none	$269	31-12-09	$2½ for 1909	5	$28 buyers
Shanghai Land Investment Co., Ld.	1888	Tls. 3,900,000	78,000	Tls. 50	Tls. 50	Tls. 1,523,045 e Tls. 300,000	Tls. 63,969	31-12-08	Final of 6% bonus Tls. 1 for 1909	6½	Tls. 106
West Point Bldg. Co., Ld.	1889	$625,000	12,500	$50	$50	none	$1,958	31-10-09	Final of $1.80 for 1909 making in all 3.80 per share for 09	8½	$42½
COTTON MILLS.											
Ewo Cotton Spinning & Weaving Co., Ld.	1895	Tls. 1,000,000	5) 20,000	Tls. 50	Tls. 50	Tls. 250,000 Tls. 40,098	Tls. 10,991	31-10-09	Tls. 11 for year ended 31-10-09	8½	Tls. 142½ sales
Hongkong Cotton Spinning, Weaving & Dyeing Co., Ld.	1901	$1,250,000	125,000	$10	$10	e $20,000	$26,297	30-7-09	50 cents for year ending 31-7-08	..	$6½ buyers

FAR EASTERN STOCKS AND QUOTATIONS—(Continued.)

STOCK.	WHEN ESTABLISHED	CAPITAL.	NO. OF SHARES.	VALUE.	PAID UP.	RESERVE	AT WORKING ACCOUNT.	DATE.	LAST DIVIDEND.	Approximate Yield per cent. per annum at Present Quotation.	CLOSING QUOTATIONS
International Cotton Manufacturing Co., Ld.	1895	Tls. 750,000	6) 10,000	Tls. 75	Tls. 75	Tls. 175,000	Tls. 8,372	30-9-09	Tls. 7½ for year ending 30-9-09	....	Tls. 61
Laou-kung-mow Cotton Spinning & Weaving Co., Ld.	1895	Tls. 800,000	8,000	Tls. 100	Tls. 100	none	Tls. 4,829	31-12-08	Tls. 6 for 1909	....	Tls. 70
Soy Chee Cotton Spinning Co., Ld	1895	Tls. 1,000,000	2,000	Tls. 500	Tls. 500	Tls. 31,172	Tls. 15,911		Tls. 50 for 1906	....	Tls. 300 ex div.
MISCELLANEOUS.											
Bell's Asbestos Eastern Agency, Ld.	1895	£5,377.10s.	11) 8,604	12/6	12/6	£1,500	£682	31-12-08	15% for 1908		$10 buyers
China-Borneo Co., Ld.	1903	$720,000	8) 60,000	$12	$12	$40,000	Nil.	31-12-08	$1.20 for 1908	10	$10 buyers
China Light & Power Co., Ld. / Do. do. Special Shares	1901 / 1907	$550,000	50,000 / 17) 50,000	$10 / $1	$10 / $1	none	$61,138	28-2-07	60 cents for year ending 28-2-06		$6½ sellers
China Provident Loan & Mortgage Co., Ld.	1898	a $1,250,000	7) 125,000	$10	$10	$100,000	$2.602	31-12-09	80 cents for 1909		$8½ sales
Dairy Farm Co., Ld.	1896	$300,000	40,000	$7½	$6	l $10,000 / $10,000	$1,850	31-7-09	$1.20 for year ending 31-7-09	8½	$18 buyers
Green Island Cement Co., Ld.	1897	$4,000,000	400,000	$10	$10	$13,000	$3,756	31-12-09	Interim of 35 cents for account 1909	10	$7 buyers
H. Price & Co., Ld.	1907	$120,000	19) 15.000	$10	$10	$5,000	$670	31-12-08	80 cents for year ending 31-12-08	8	$12
Hongkong Electric Co., Ld.	1889	$600,000	60,000	$10	$10	none	$5,195	29-2-09	$1.00 and bonus 20 cents for year ending 29-2-09	6	$20½ buyers
Hongkong Ice Co., Ld.	1881	$125,000	5,000	$25	$25	k $150,000	$7,616	31-12-08	Interim of $2 for a/c 1909.	10	$160 sales
Hongkong Rope Manufacturing Co., Ld.	1883	$600,000	$60,000	$10	$10	$40,000	$9,176	31-12-09	Final of $1 making in all $2 for 1909	8½	$21½
Maatschappij tot Mijn-, Boschen Landbouwexploitatie in Langkat	1902	Gs. 2,500,000	25,000	Glds. 100	Glds. 100	Tls. 547,500 / f Tls. 63,914 / 21 Tls. 547,500	Tls. 316,682	31-10-08	Final interim of Tls. 12½ for 1909.	8½	Tls. 1525
Peak Tramways Co., Ld. / Do. (New)	1907	$750,000	25,000 / 50,000	$10 / $10	$10 / $1	$20,000	$2,204	30-4-09	80 cents on fully paid shares & 8 cents on $1 paid shares for year ending 30-4-09	6 / 3	$15 buyers / $1.30
Philippine Co., Ld.	1904	$750,000	75.000	$10	$10	none	Ps. 2,875	31-12-06	None	....	$10½ buyers
Robinson Piano Co., Ltd.	1900	$200,000	22) 4,000	$50	$50	$5.000	$61,138	31-8-08	6% for ½ year ending 30.9.07	....	$50
Shanghai-Sumatra Tobacco Co., Ld.	1902	Tls. 600,000	9) 30,000	Tls. 20	Tls. 20	Tls. 24,820 / w Tls. 75,000	Tls. 5.250	31-10-08	Final of Tls. 5 making Tls. 8 for 1908	4¾	Tls. 350
South China Morning Post, Ld.	1903	$150,000	6,000	$25	$25	none	Dr. $31,096	31-8-09	None	....	$25 buyers
Steam Laundry Co., Ld.	1902	$100,000	20.000	$5	$5	none	$63	31-5-09	40 cents for year ending 30-5-09	7	$5 buyers
Union Waterboat Co., Ltd.	1905	$500,000	15) 50,000	$10	$10	none	$172	31-12-08	60 cents for year-end. 31-12-1908	5	$9 sellers
United Asbestos Oriental Agency, Ld.	1896	$100,000	10,000	$10	$4	$46,000	$342	31-5-09	60 cents per ordinary share for year ending 31-5-09	6½	$12½ sellers
Watson (A. S.) & Co., Ld.	1886	$900,000	90,000	$10	$10	$300,000 / e) $25.000	$2,613	31-12-08	Final of 30 cents making 60 cents for 1908	6⅔	$7 sellers
Weismann Limited	1904	$30,000	3,000	$10	$10	$12,250	$67	31-7-09	10 per cent for year endg. 31.7.08.	....	$10 buyers
William Powell, Ld.	1901	$105,000	15,000	$7	$7	none	$782	30-6-09	Final of 30 cents making 80 cents year ending June 30th 1906	....	$3
RUBBERS											
Allagar Rubber Estates, Ltd	1909	£85,000	29) 750,000	2/-	2/-	....	....	....	....	....	7/6
Anglo-Malay Rubber Co., Ltd.	1905	£150 000	1.500,000	2/-	2/-	....	....	....	Interim of 6d for a/c 1910	....	36/6
Balgownie Rubber Estate, Ltd.	1905 ††	$200,000	‡‡ 20,000	†† $10	†† $10	$7,400	$11,205	31-3-09	20% Interim for 1909	....	$275 [S'pore]
Castlefield Rub. Ld., [fully pd.]	1906	£35,000	27) 32,650	£1	£1	none	....		....	....	125/-
Damansara (Selangor) Rub. Co.	1906	£110,000	25 110,000	£1	£1	nil.	£2,220	31-12-08	2/6 for 1909	....	187/6
Golconda Malay Rubber Co.	1907	£80,000	26 80,000	£1	£1	nil.	nil.	....	....	....	160/-
Highland & Lnd. Para R. Co. / Do. Do. [fully paid] / Do. Do. [partly paid]	1906	£310,000	=181,454 / 123,546	£1 / £1	£1 / 15/-	£8,784	....	....	7½% for 1909 (interim.)		172/6 / Nominal
Kamuning (Perak) Rb. & Tin Co. / do do A Shares / do do B Shares	1909	£200,000	950,000 / 105,000	2/- / £1	1/- / £1	nil. /	nil. / 1,82	....	....	....	10/9 / Nominal.
Kuala Lumpur Rubber Co., Ltd.	1906	£180,000	180,000	£1	£1	£4,000	....	....	20% for year ending 30-6-09.	....	260/-
Linggi Plantations, Ltd. (ord.) / Do. Do. (7% pref.)	1895 Reconst.	£100,000	×900,000 / 10,000	2/- / £1	2/- / £1	....	....	....	Interim of 40% = 9d for a/c 1909.	....	62/- / Nominal
Ledbury Rubber Estates Ltd. / Do. Do. (contrib.)	1908	£125,000	§§ 60,000 / §§ 40,000	£1 / £1	£1 / 7/6	....	....	....	....	....	100/- / 58/6
Sagga Rubber Co. Ld.	1903	£20,000	24) 2,000	£1	£1	nil.	nil.	....	....	....	295/-
Sandycroft Rubber Co.	1904	$100,000	50,000	$2	$2	$20,000	$1,275	31.1.08	Interim of 30% for 1909	....	$55 ex rights
Sekong Rubber Co., Ld.	1908	£80.000	27) 80,000	£1	12/6	nil.	nil.	....	....	....	32/6 prem.
Shelford Rubber State Ld.	1906	£65,000	65 000	£1	£1	nil.	£836	31.12.08	3% for 1908	....	80/-
Singapore & Johore Rb. Co., Ld.	1903	$250,000	2,500	$100	$100	nil.	nil.	....	....	....	1260/-
Sungei Choh. Rb. State Co., Ld.	1907	£45,000	45,000	£1	17/-	nil.	nil.	....	....	....	112/6
Sungei Kapar Rubber Co.	1906	£110,000	23) 110,000	£1	£1	nil.	£3,448	31.12.	8½% Interim for 1909	....	187/6

LOANS AND DEBENTURES.	AGENTS FOR THE LOAN.	AMOUNT OF LOAN.	PAR VALUE.	OUTSTANDING BONDS.	WHEN PAYABLE.	CLOSING QUOTATIONS.
China Government, 7 per cent. Silver Loan 1886 E	Hongkong & Shanghai Banking Corporation.	Tls. 767,200	Tls. 250	1914	Mar. 31st and Sept. 30th each year until Mar. 31st, 1917	par.
Hongkong Hotel Company, Ltd., 6 per cent. Mortgage Debentures of 1899 ‡		$750,000	$500	$ all	Half yearly, June 30th and December 31st	par
Shanghai & Hongkew Wharf Company, Ltd., 6 per cent. Debentures of 1902		Tls. 543,900	Tls. 100	....	Half yearly, June 30th and December 31st	Tls. 103½ Plus interest
Astor House Hotel Company, Ltd., 8 per cent. Debentures of 1903		Tls. 500,000	Tls. 100	....	Half yearly, January 1st and July 1st	102½
Chinese Engineering & Mining Co., Ltd., 6 per cent. Debentures of 1903 †	....	£500,000	¶	£431,960	Half yearly, June 30th and December 31st	par.
International Cotton Manufacturing Co., Ltd. 7% Debentures of 1901	Russo Chinese Bank	Tls. 500,000	Tls. 100	‖	Half yearly, March 31st and Sept. 30th	Tls. 97½.

a Authorized capital $2,000,000.
b Building Reserve Account.
c Capital Reserve Fund.
d Depreciation Fund.
e Equalization of Dividend Fund.
f Exchange and Investment Fluctuation Account.
g Gold Reserve Fund
h Exchange Reserve Account.
i Insurance Fund.
j Reinsurance Fund.
k Contingencies Account.
l Legal Reserve Fund.
m Authorized Capital
n Sinking Fund.
o Raw Sugar Reserve Account.
p Premium on New Issue.
q Boiler Repairs and Renewals Account
r Repairs and Renewals Account.
s Silver Reserve Fund.
t Depreciation and Repair Account
u Underwriting Suspense Account.
v Special account
w Special Works Fund.
x Extra Reserve Fund.
y 72,560 owned by the Company.
z 7.200 shares unissued.
1 4,000 shares unissued.
2 First issue of 60,000, of which 10,411 unallotted.
3 5,000 shares unissued.
4 4,480 shares unissued.
5 5,000 shares unallotted.
6 1,616 shares unallotted.
7 75,000 shares unissued.
8 14,000 shares unissued.
9 17,000 shares unissued.
10 40,453 shares actually issued.
11 7,688 shares actually issued.
12 4,200 shares unissued.
13 500 shares unissued.
14 399 shares unissued.
15 22,277 shares unissued.
16 10,000 shares unissued.
17 Special shares are entitled to half of the profits.
18 Capital contributed by Chinese Government Kuping Tls. 5,000,000.
19 12,000 issued only.
20 Typhoon and Floods Insurance Fund
21 Special Cash Reserve.
22 1000 shares unissued.
23 10,000 shares unissued.
24 4595 part paid shares.
25 7,500 shares unissued.
26 10,000 shares unissued.
27 2,350 shares unissued.
28 25,000 shares unissued.
29 100,00 shares unissued.
*Based on last year's dividend.
** Based on present dividend.
§ 216 held by the Company.
‖ Only Tls. 134,000 taken up.
¶ In certificates of £20 and £100.
‡ Redeemable in 10 years, or at option of Comp., the Company giving 6 months notice.
† Redeemable at par at rate of £10,000 per annum from 31st December 1903 to 31st December 95.
*** Redeemable at par on 30th June, 1915.
Dr Deficit.
†† Singapore dollars.
‡‡ 4,880 shares unissued.
× 16,756 shares unissued.
§§ 25,000 shares unissued.
4140 shares unissued.

ADDITIONAL SHANGHAI SHARE QUOTATIONS

STOCK	CLOSING QUOTATIONS	HIGHEST AND LOWEST PRICES DURING THE WEEK	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	LAST DIVIDEND	WHEN PAID
Oriental Consolidated Mining Co., Ltd.	27s. 6d.		G. $5,000,000	500,000	G. $10	G. $10	none	Total of Gold 1.15 for 1909	Jan. 10, 1910
Vulcan Iron Works, Limited	Tls. 400		Tls. 500,000	1,000	Tls. 500	Tls. 500	—	Tls. 50 for year ended 31.8.06	Nov. 1, 1909
Yangtsze Wharf & Godown Co., Limited	Tls. 125 nominal		Tls. 250,000	2,500	Tls. 100	Tls. 100	Tls. 50,000	Tls. 15 for 1908	April 1, 1909
Wei-hai-wei Land & Building Co., Limited	Tls. 10 nominal		Tls. 91,850	3,674	Tls. 25	Tls. 25	—	Interim of $2.00 for 1909	Aug. 3, 1909
Hotel des Colonies Company, Limited	Tls. 4 sales		Tls. 112,500	9,000	Tls. 12½	Tls. 12½	Tls. 29,783	6% for 1907	May 29, 1908
Anglo-German Brewing Co., Limited	$85 buyers		$100,000	4,000	$100	$100	none	$7 for 1907	Mar. 12, 1908
Butler Tile Works, Limited	Tls. 25		Tls. 60,000	1,200	Tls. 50	Tls. 50	—	Tls. 3 for year ending 31.3.09	June 8, 1909
Major Bros., Limited	Tls. 55		Tls. 300,000	6,000	Tls. 50	Tls. 50	—	—	—
Oriental Ice Company, Limited	Tls. 20		Tls. 130,000	2,600	Tls. 50	Tls. 50	—	First year	—
Scharffs Oil and Bone Mills, Ltd.	Tls. 40		Tls. 200,000	4,000	Tls. 50	Tls. 50	—	First year	—
Shanghai Ice Company, Limited	Tls. 12		Tls. 200,000	8,000	Tls. 25		—	3% for 1907	Mar. 14, 1908
Campbell, Moore & Co., Limited	$10		$12,000	1,200	$10	$10	$9,000	$3 for 1905	Apr. 2, 1906
Dunning & Company, Limited	$35 sellers		$100,000	2,000	$50	$50	—	$5 year ending 28.2.08	Apr. 15, 1908
J. Llewellyn & Co., Limited	$60 nominal		$72,000	1,200	$60	$60	—	7.20 for 1908	Apr. 1, 1908
Lane, Crawford & Company	$150		$250,000	2,500	$100	$100	—	Final of 3% making 6% for 1908	June 8, 1909
S. Moutrie & Company, Limited	$40		$250,000	5,000	$50	$50	—	$4 for year ended March 31, 1909	June 18, 1909
Weeks & Company, Limited	$25 buyers		$400,000	20,000	$20	$20	$40,000	Interim of 80 cents for 1909	Dec. .., 1909
Dominion Rubber Co., Limited	Tls. 70 sellers		Tls. 225,000	22,500	Tls. 10	Tls. 4	—	First year	—
Kalumpong Rubber Co., Ltd.	Tls. 725 sellers		Tls. 700,000	14,000	Tls. 50	Tls. 50	** Tls. 11,844.48	16% for 1908	Nov. 9, 1909
Senawang Rubber Estates Company, Limited	Tls. 1550		Tls. 250,000	2,500	Tls. 100 Tls. 100	Tls. 100 Tls. 75	—	—	—
Tebong Rubber and Tapioca Estate, Limited	59s.		£76,000	76,000	£1	£1	—	—	—
Shanghai Mercury, Limited	Tls. 50 buyers	-	Tls. 105,500	2,100	Tls. 50	Tls. 50	—	Interim of 4% for ½ year 1909	June 21, 1909
Shanghai Mutual Telephone Co., Limited	Tls. 67½ buyers		Tls. 675,000	13,500	Tls. 50	Tls. 50	—	Tls. 3 for 1907	June 28, 1909
China Export, Import & Lumber Company, Limited	Tls. 75		Tls. 350,000	500	Tls. 100	Tls. 50	—	10 p. c. for year ending 29.2.08	May 1, 1908
China Printing Co., Limited	Tls. 42½		Tls. 750,000	1,500	Tls. 50	Tls. 50	—	7% 1908	Apr. 18, 1909
Hirano Mineral Water Co., Ltd.	Y. 10		Y. 125,000	5,000	Y. 25	Y. 25	—	10%=yen 2½ for year ending 30th Sept. 08 Y. 1.20 for year ended Feb. 29	Apr. 26, 1909
E. E. Porter & Co., Limited	$50		$100,000	2,000	$50	$50	—	$6 for 1907	Apr. 22, 1908
Shanghai Electric & Asbestos Company, Limited	$21 sellers		$125,000	5,000	$25	$25	—	8% for year ended Feb. 28, 09	June 21, 1909
Shanghai Electric Construction Company, Limited	£6 sellers	£11	£320,000	32,000	£10	£10	—	First year	—

DEBENTURES

LOANS	PRICE—PLUS ACCRUED INTEREST	AMOUNT OF LOAN	OUTSTANDING	NOMINAL VALUE	RATE OF INTEREST	WHEN PAYABLE
Shanghai Municipal Debentures 1892	Tls. 92½	Tls. 50,000	Tls. 45,400	Tls. 100	5 %	June & Dec.
do 1893	,, 96	,, 125,000	" 32,000	" 100	5½ ,,	Do
do 1894	,, 105	,, 105,000	" 60,000	" 100	6 ,,	Do
do 1895	,, 92½	,, 115,000	" 32,600	" 100	5 ,,	Do
do 1896	,, 92½	,, 140,000	" 131,800	" 100	5 ,,	Do
do 1897	,, 92½	,, 268,800	" 268,400	" 100	5 ,,	Do
do 1898	,, 105	,, 300,000	" 60,000	" 100	6 ,,	Do
do 1900	,, 96	,, 33,900	" 31,700	" 100	5½ ,,	Do
do 1901	,, 105	,, 250,000	" 200,000	" 100	6 ,,	Do
do 1902	,, 105	,, 150,000	" 150,000	" 100	6 ,,	Do
do 1903	,, 105	,, 490,500	" 490,500	" 100	6 ,,	Do
do 1904	,, 105	,, 214,500	" 214,500	" 100	6 ,,	Do
do 1905	,, 105	,, 320,000	" 320,000	" 100	6 ,,	Do
do 1907	,, 105	,, 250,000	" 250,000	" 100	6 ,,	Do
Chinese Imperial Government Loan 1886 E	,, 250	,, 767,200	" 351,400	" 250	7 ,,	Mar. & Sept
Shanghai Land Investment Co., Debentures 1890	,, 103½	,, 250,000	" 250,000	" 100	6 ,,	May & Nov.
do 1892	,, 96	,, 250,000	" 250,000	" 100	5½ ,,	June & Dec.
do 1894	,, 103½	,, 250,000	" 250,000	" 100	6 ,,	Mar. & Sept.
do 1896	,, 92½	,, 250,000	" 250,000	" 100	5 ,,	June & Dec.
do 1900	,, 103½	,, 250,000	" 250,000	" 100	6 ,,	April & Oct.
do 1901	,, 104	,, 250,000	" 250,000	" 100	6 ,,	June & Dec.
do 1901	,, 96	,, 100,000	" 100,000	" 100	5 ,,	May & Nov.
do 1902	,, 103½	,, 400,000	" 400,000	" 100	6 ,,	June & Dec.
do 1905	,, 103¼	,, 250,000	" 250,000	" 100	6 ,,	Do
Shanghai Waterworks Co., Debentures 1909	,, 103	,, 815,900	" 815,900	" 100	6 ,,	Do
Perak Sugar Cultivation Co., Debentures 1902	,, 101	,, 200,000	" 200,000	" 100	7 ,,	April & Oct.
Shanghai Gas Co., Debentures 1909	,, 103	,, 800,000	" 800,000	" 100	5 ,,	Do
Shanghai and Hongkew Wharf Co., Debentures 1902	,, 102	,, 839,100	" 799,800	" 100	6 ,,	June & Dec.
Astor House Co., Debentures 190[illegible]	,, 103	,, 750,000	" 500,000	" 100	7 ,,	Do
British Municipal Council, Hankow 190[illegible]	Sh. ,, 105	H'kow Tls 100,000	H'kow Tls 100,000	" 100	7 ,,	June & Dec.
Shanghai Club Debentures 190[illegible]	,, 100	Tls. 170,000	Tls. 170,000	" 100	6 ,,	Do
Country Club Debentures	,, 97	,, 139,000	" 139,000	" 100	6 ,,	Do
do 190[illegible]	,, 97	,, 92,000	" 92,000	" 100	6 ,,	Do
Lane Crawford & Co., Debentures 190[illegible]	,, 102½	,, 110,000	" 110,000	" 100	7 ,,	Mar. & Sept.
Anglo-French Land Debentures 190[illegible]	,, 102	,, 250,000	" 250,000	" 100	6 ,,	June & Dec.
Central Stores Ltd. Debentures 190[illegible]	,, 102½	,, 250,000	" 250,000	" 100	8 ,,	Do
Shanghai Mutual Tel. Co. Debentures 190[illegible]	,, 102½	,, 350,000	" 200,000	" 100	6 ,,	Do

SINGAPORE SHARE QUOTATIONS

(Courtesy Messrs. Fraser & Co., Brokers, Singapore, March 3, 1910)

Formation	Capital	Capital paid up	Shares Issued	Issue Value	Paid up	Reserve	Last Dividend	Name	Buyer
								MINING	
1903	$300,000	300,000	30,000	10	10	—	10% interim for 1909	Belat Tin Mining Co., Ltd.	4.00
1907	$300,000	225,000	22,500s	10	10	—		Bruang Ltd.	4.00
1901	$600,000	600,000	60,000	10	10	25,000	10% for year ending 30-4-08	Bruseh Hydraulic Tin Mining Co., Ltd.	6.00
1903	£600,000	444,200	444,200a	1	1	—		Duff Development Co., Ltd.	13.00
1907	$400,000	375,000	37,500b*	10	10	—		Kanaboi, Ltd.	2.15
1901	£60,000	60,000	60,000	1	1	—	2/- interim for 1909	Kinta Tin Mines, Ltd.	14.25
1906	£100,000	100,000	100,000	1	1	—		Kledang Tin Mining Co., Ltd.	1.50
1905	$150,000	99,000	9,900c	10	10	6,485.68	35% for year ending 31-12-07	Kuantan Tin Mining Co., Ltd.	3.00
1906	£120,000	120,000	120,000	1	1	—	1/- interim 1909	Lahat Mines Ltd.	8.00
1906	£30,000	30,000	30,000	1	1	—		Malaya and Siam Corporation Ltd.	....
1906	$450,000	450,000	45,000	10	10	—		Malacca Tin Dredging Co., Ltd.	2.50
1906	£250,000	179,500	500,000e	5/-	5/-	—		Pahang Consolidated Co., Ltd.	7/6
1907	£100,000	80,000	80,000a*	1	1	—		Pengkalen, Ltd.	6.50
1904	£100,000	80,000	80,000	1	1	—		Pusing Bahru Tin Mines, Ltd	8.25
1904	£120,000	100,000	100,000d	1	1	6,000	45% for year ending 30-6-07	Pusing Lama Tin Mines, Ltd.	....
1907	$450,000	300,000	30,000y	10	10	—		Rahman Hydraulic Tin, Ltd.	8.50
1905	£27,000	27,000	27,000	1	1	—	1/- for 1907	Rambutan, Ltd	10.00
1892	£200,000	191,250	50,000	1	1	4,873	1/- paid January, 1901	Raub Aust. Gold Ming. Co., Ltd.	4.75
			150,000	1	18/10	—	1/- " " "	" " " *Contributory*	4.50
1905	£40,000	40,000	40,000	1	1	—		Redhills Tin Mining Co., Ltd.	3.00
1900	$110,000	110,000	22,000	5	5	—	3% for year ending 22-1-09	Royal Johore Tin Mining Co., Ltd	1.35
1907	$550,000	500,000	50,000f*	10	10	—		Salak South, Ltd.	5.00
1907	£80,000	80,000	80,000	1	1	—		Sempam Tin Mines, Ltd.	2.35
1906	$850,000	850,000	85,000	10	10	25,000	5% interim for 1909	Serendah Hydraulic Tin Ming. Co., Ltd.	6.00
1899	$230,000	230,000	23,000	10	10	—	3% for ½ year ending 31-12-08	Sipiau Tin Co., Ltd.	1.50
1909	$200,000	$150,000	15,000	10	10	—		Sungei Gau Tin Mining Co., Ltd	4.50
1907	£90,000	70,000	70,000t	1	1	—	1/6 interim for 1909	Tekka, Limited	21.00
1906	£150,000	150,000	150,000	1	1	—	1/- interim for 1909	Tongkah Harbour Tin Dredging Co., Ltd.	12.75
1902	£160,000	160,000	160,000	1	1	—	2/- interim for 1909	Tronoh Mines, Ltd.	13.00
								RUBBER	
1909	£85,000	75,000	750,000x*	2/-	2/-	—		Allagar Rubber Estates, Ltd.	7/3
1909	$120,000	105,000	105,000w*	1	1	—		Alor Gajah Rubber Estate, Ltd	3.35
1909	$750,000	600,000	140,000b‡	5	5	—		Ayer Panas Rubber Estates, Ltd.	17.00
1905	£150,000	150,000	1,500,000	2/-	2/-	—	25% interim for 1909	Anglo-Malay Rub. Co., Ltd.	1.12.0
1905	$200,000	151,200	15,120x	10	10	7,400	20% interim for 1909	Balgownie Rub. Estate, Ltd	260.00
1909	£50,000	35,250	470,000g‡	2/-	1/6	.....		Batang Malaka Rubber Estates, Ltd.	4/6
1904	£30,000	20,187 10/-	19,000	1	1	—	10% for year ending 31-12-08	Batu Caves Rub. Co., Ltd.	16.0.0
			4,750f	1	5/-	—			
1906	£80,000	70,000	70,000l*	1	1	—	5% for year ending 31-3-09	Batu Tiga (Selangor) Rubber Co., Ltd.	4.12.6
1909	£100,000	68,908	57,816	1	1	—		Bukit Kajang Rubber Estates, Ltd	4.10.0
			22,184n*	1	10/-	—		" " " *Contributory*	3.10.0
1907	£30,000	25,500	24,000e*	1	1	—		Bukit Lintang Rubber Estates, Ltd.	5.12.6
			6,000	1	5/-	—		" " " *Contributory*	2.5.0
1903	£70,000	66,700	66,700g	1	1	2,000	45% interim for 1909	Bukit Rajah Rubber Co., Ltd.	18.0.0
1910	$500,000	500,000	50,000	10	10	—		Bukit Timah Rubber Estates, Ltd.	22 [illegible]
1906	£35,000	30,000	30,000	1	1	.....		Castlefield (K.) R. Estate, Ltd.	5.15.0
1910	$750,000	700,000	70,000h‡	10	10	—		Changkat Serdang Estates, Ltd	20.50
1909	200,000	62,500	12,500	10	5	—		Cheras Rubber Estates, Ltd	9.75
1909	£225,000	175,000	1750,000t*	2/-	2/-	—		Chersonese (F.M.S.) Estates, Ltd	6/-
1904	£16,000	16,000	100,000	2/-	2/-	—	25% interim for 1909	Cicely Rubber Estates Co., Ltd.	2.8.9
			60,000	2/-	2/-	.....	26¼% interim for 1909	" " " " *5% Pref.*	2.8.9
1905	£75,000	62,007	62,007i	1	1	1,000	25% interim for 1909	Consolidated Malay Rub. Estates, Ltd	14.0.0
1906	£110,000	102,500	102,500k*	1	1	—	12½% for year ending 31-12-08	Damansara (Selangor) Rubber Co., Ltd.	8.15.0
1909	£45,000	40,000	40,000p*	1	1	—		Edinburgh Rub. Estates, (Selangor) Ld.	6.0.0
1909	$550,000	475,000	475,000v*	1	1	—		Elphinstone Estates, Ltd	5.50
1909	$300,000	300,000	300,000	1	1	—		Glenealy Plantations, Ltd.	2.30
1907	£80,000	70,000	70,000n	1	1	—		Golconda Rubber Co., Ltd.	7.0.0
1909	$600,000	150,000	30,000c‡	10	5	.....		Henrietta Estates, Ltd.	6.00
1906	$680,000	680,000	40,000	17	17	—		Hevea Rubber Planting Co. Ltd.	17.00
1906	£310,000	305,000	305,000j	1	1	8,784	15% interim for 1909	Highlands & Lowds. Para Rub. Co., Ltd.	7.10.0
1904	£50,000	30,000	30,000q*	1	1	2,500	5% for year ending 30-6-09	Inch Kenneth Rubber Estates, Ltd	17.5.0
1909	$250,000	200,000	20,000a‡	10	10	—		Indragiri (S.) R. and Gutta P. Co., Ltd.	46.50
1909	£200,000	182,500	950,000p	2/-	1/-	—		Kam. (P.) R. & T. Co., Ltd. "A" Shares	8/
			105,000	1	1	—		" " " " "B" "	....
1905	£65,000	65,000	65,000	1	1	—		Kapar Para Rubber Estates, Co., Ltd.	8.15.0
1907	$300,000	200,000	20,000d‡	10	7	.....		Kombok Rubber Co., Ltd	17.00
1906	£180,000	180,000	180,000	1	1	—	20% for year ending 30-6-09	Kuala Lumpur Rubber Co., Ltd	10.5.0
1907	£100,000	90,000	90,000h*	1	1	—	7% for year ending 30-12-08	Labu (F.M.S.) Rubber Co., Ltd. *Contrib.*	7.17.6
1907	£320,000	269,780	198,930v	1	1	3,000	10% interim for 1909	Lanadron Rubber Estates, Ltd.	7.15.0
			70,850	1	15/-	—	10% interim for 1909	" " " *Contributory*	6.15.0
1908	£125,000	75,000	60,000g*	1	1	—		Ledbury Rubber Estates Ltd.	5.0.0
			40,000	1	7/6	—		" " " *Contributory*	3.5.0
1895	£100,000	98,324 8/-	883,244w	2/-	2/-	4,000	65% interim 1909	Linggi Plantations Ltd., *Ordinary*	2.15.0
			10,000	1	1	—	7% for year ending 31-12-08	" " " *7% Pref.*	....
1907	£140,000	118,000	118,000k	1	1	—	3% for year ending 31-12-08	London Asiatic R. & Produce Co., Ltd.	8.0.0
1909	£220,000	75,000	150,000	1	10/-	.....		Lumut Rubber Estates, Ltd.	3.9.0
1906	£400,000	300,000	185,000	1	1	—	10% interim for 1909	Malacca Rubber Plants., Ltd. *Ordinary*	15.7.6
			115,000	1	1	—	" " "	" " " *7½% Pref.*	15.7.6
1909	£210,000	175,000	1,750,000	2/-	2/-	.....		Merlimau Rubber Estates, Ltd	6/-
1909	$400,000	400,000	80,000	5	5	—		Pajam Limited	18.00
1909	$200,000	200,000	200,000	1	1	—		Pantai, Limited	1.85
1903	£30,000	22,500	225,000l	2/-	2/-	—	25% interim for 1909	Pataling Rubber Estates Synd. Ltd	3.0.0
1909	$500,000	450,000	45,000m*	10	10	—		Pegoh, Limited	58.00
1906	£85,000	85,000	85,000	1	1	—	12½% interim for 1909	Perak Rubber Plantations, Ltd.	6.0.0
1910	$450,000	295,000	45,000f‡	5	5	.....		Port Dickson Rubber Co., Ltd	10.00
			35,000	5	2	.....		" " "	7.00
1909	£60,000	36,875	15,000s*	1	1	—		Rembia Rubber Estates Ltd. *Ordinary*	1.5.0
			35,000	1	12/6	—		" " " *6% Cum. Pref.*	1.10.0
1904	£20,000	18,752	20,000u	1	1	—		Sagga Rubber Company, Limited	14.10.0
1904	$100,000	100,000	50,000b*	2	2	20,000	150% for year ending 31-1-10	Sandycroft Rubber Co., Ltd	50.00
1905	£100,000	100,000	71,378	1	1	.....		Sapong Rubber and Tobacco Estates, Ltd.	2.2.6
			28,622l‡						
1907	£100,000	80,400	48,000i*	1	1	—		Seafield Rubber Co., Ltd	8.0.0
			48,000	1	13/6	—		" " " *Contributory*	7.0.0
1898	£30,000	30,000	300,000	2/-	2/-	3,000	62½% interim for 1909	Selangor Rubber Co., Ltd.	4.2.6
1909	£50,000	32,000	40,000e‡	1	16/-	—		Sendayan (F.M.S.) Rubber Co., Ltd	3.0.0
1906	£65,000	65,000	65,000	1	1	—	3% for year ending 31-12-08	Shelford Rubber Estate, Ltd.	3.18.6
1909	£150,000	100,000	100,000i‡	1	15/-	—		Sialang Rubber Estates, Ltd	3.5.0
1909	£120,000	100,000	100,000s*	1	1	—		Singapore Para Rubber Estates, Ltd.	4.0.0
1905	$500,000	500,000	5,000	100	100	—		Singapore Rubber Co., Ltd.	725.00
1903	$425,000	328,800	2,423	100	100	—	20% for year ending 31-12-10	Singapore & Johore Rub. Co., Ltd.	1000.00
			1,750	100	50	.....	" " " "	" " " *Contributory*	900.00
1909	$250,000	60,000	10,000o*	10	6	.....		St. Helena Rubber Coy., Ltd	35.00
1906	£175,000	175,000	175,000	1	1	.....	15% interim for 1909	Straits Settlements (B.) Rub. Co., Ltd.	4.10.0
1907	£45,000	40,500	12,600	1	1	—		Sungei Choh Rub. Estate, Ltd. *Fully pd.*	4.17.6
			32,400	1	17/6	—		" " " *Contributory*	4.10.0
1906	£110,000	100,000	100,000c*	1	1	—	7½% interim for 1909	Sungei Kapar Rubber Co., Ltd.	8.0.0
1907	£70,000	55,000	55,000	1	1	—		Sungei Salak Rubber Co., Ltd.	4.15.0
1904	£50,000	50,000	50,000	1	1	—		Sungei Way (Selangor) Rub. Co., Ltd.	6.7.6
1908	£150,000	60,000	36,000	1	1	.....		Tebrau (Johore) Rubber Co.	4.7.6
			64,000	1	7/6	.....		" " " *Contributory*	3.17.6
1909	$200,000	165,000	33,000p*	5	5	.....		Teluk Anson Rubber Estate, Ltd.	8.00
1907	£200,000	170,000	170,000j*	1	1	—	5% for year ending 31-8-08	United Serdang (S.) R. Plantations, Ltd.	7.0.0
1909	$1,000,000	637,500	737,500y*	1	1	—		United Singapore Rubber Estates, Ltd.	2.25
				1	-/50	—		" " " " "	....
1908	£85,000	65,000	650,000	2/-	2/-	—	10% for year ending 30-6-09	United Sumatra Rubber Estates, Ltd.	14/-
1904	£60,000	50,600	506,000m	2/-	2/-	—	25% interim for 1909	Vallambrosa Rubber Co., Ltd.	2.12.0
								GENERAL	
1907	$1,500,000	1,065,150	25,000d*	10	10	—	10% for year ending 31/12/08	Eastern Smelting Co. Ltd.	....
			116,450	10	7	—	10% for year ending 31-12-08	" " "	7.50
1898	$225,000	225,000	4,500	50	50	150,000	15% & 5% bon. for yr. end. 31-12-09	Fraser & Neave, Ltd.	230.00
1905	$2,400,000	2,400,000	18,000	100	—	75,000	2½% for year ending 31-10-08	Howarth Erskine, Ltd.	58.00
			6,000	100	—	—	7% for year ending 31-10-08	" " *7% Pref*	90.00
1896	$1,000,000	1,000,000	6,000	100	100	600,000	10% for year ending 31-12-07	Katz Brothers, Ltd. *Deferred*	....
			4,000	100	100	—	12½% " " " " 08	" " *8% Cum. Pref*	....
1901	$34,000	34,000	3,400	10	10	—	20% for year ending 31-10-09	Maynard & Co., Ltd.	22.00
1899	$875,000	875,000	6,000	100	100	175,000	5% for year ending 31/12/09	Riley, Hargreaves & Co., Ltd.	80.00
			2,750	100	100	—	7% for year ending 31/12/09	" " " " *7% Pref.*	....
1903	$600,000	250,000	25,000n	10	10	—	10% for year ending 30-6-09	Singapore Cold Storage Co., Ltd	14.50
1891	$30,000	30,000	600	50	50	23,000	10% for year ending 31-7-08	Singapore Dispensary Ltd.	52.50
1903	£400,000	400,000	400,000	1	1	—		Singapore Electric Tramways, Co., Ltd.	4/3
1884	$200,000	200,000	2,000	100	100	35,000	15% for year ending 31-12-09	Straits Ice Co., Ltd	155.00
1890	$500,000	498,000	4,980z	100	100	760,000q	10% interim for 1909	Straits Steam Ship Co., Ltd.	210.00
1887	$3,000,000	3,000,000	3,000,000	10	10	130,000r 1,222,409	10% & 5% bon. for half yr. end. 30-9-09	Straits Trading Co., Ltd.	61.00

a 152,800 unissued; 43,949 6% debenture
b 2,500 unissued
c 5,100 "
d 20,000 "
e 54,500 £1 Prefs. issued; 45,500 £1 " unissued; 100,000 5/- Ord. "
f 6,250 unissued
g 3,300 "
h 12,993 "
i 5,000 "
j £40,000 6% Debentures 22,000 unissued
k 75,000 unissued
l 94,000 "
m 35,000 "

o 175,000 unissued "A" shares
p Sundry Reserves.
q "
r 7,500 unissued
s 20,000 "
t 2,268 9/- paid shares
u 50,220 unissued
v 16,756 "
w 4,880 "
v 15,000 "
y 20 unissued
z 20,000 "
a* 221 7½% Debentures
b* 10,000 unissued
c* 8,550 "

e* 25,000 unissued
f* 10,000 "
g* 4,000 "
h* 30,000 "
i* 7,500 "
j* £10,000 Convertible 6% Debentures issued
k* 10,000 do. unissued
l* 5,000 unissued
m* 20,000 "
n* 15,000 "
o* 7,000 "
p* 20,000 "
q* 5,000 "
r* 500,000 "
s* 15,000 "

u* 15,000 unissued
v* 100,000 "
w* 262,500 "
x* 10,000 "
y* 5,000 "
z* 30,000 "
a‡ 30,000 "
b‡ 10,000 "
c‡ 10,000 "
d‡ 10,000 "
e‡ 30,000 "
f‡ 5,000 "
g‡ 50,000 "
h‡ 70,000 "
i‡ 35,000 "
j‡ 6% Deb. Stock

DEBENTURES

Name	Amount	Buyer
Howarth Erskine, Ltd. 6%	$ 600,000	....
Riley, Hargreaves & Co., Ltd. 6%	284,000	1%
Singapore Electric Tramways, Co., Ltd. 5%	£350,000	....
Singapore Municipal 5%	1,878,000	....
" " 4½% of 1907	1,600,000	6%
" " 4½% of 1909	1,000,000	6%
" 4%	602,900	....

YOKOHAMA SHARE QUOTATIONS

COURTESY A. C. HUTTON POTTS, SHARE AND GENERAL BROKER, YOKOHAMA, MARCH 17, 1910.

STOCKS.	CAPITAL.	NO. OF SHARES.	ISSUE VALUE.	AMOUNT PAID UP.	RESERVE FUND.	AT WORKING ACCOUNT OR CARRIED FORWARD.	DATE.	LAST DIVIDEND.	FOR TERM.	CLOSING QUOTATION.
Brett & Co., Ltd.	-Y- 28,000	2,800	-Y- 10	-Y- 10			31-12-08	12½%	for 1 year	10 Sales
Club Hotel Ltd.	185,000	1,850	100	100	3,000	-Y- 768.96	31-3-08	7%	for 1 year	60 Buyers
Grand Hotel, Ltd.	500,000	5,000	100	100	10,000		31-12-09	2½%	for ½ year	100 Sales
Helm Bros., Ltd.	186,000	3,720	50	50	25,000	-Y- 6,395.55	31-12-08	17½%	for 1 year	80 Sales.
Langfeldt & Co., Ltd.	100,000	2,000	50	50	12,500	3,653.92	31-12-09	10%	for 1 year	50 Buyers
C. Nickel & Co., Ltd. †	500,000	20,000	25	25		36,332.37	31-10-09	20%	for 1 year	48 Buyers
Thwaites, Limited.	100,000	2,000	50				First Year	—	—	
Yokohama Engine and Iron Works *	500,000	10,000	50	50	50,000	-Y- 29,421.19	31-5-08	10%	for 1 year	50 Nominal
Oriental Hotel, Ltd., Ordinary }		3,000	50	50			31-8-07	12%	for 1 year	50 Sales
	250,000				306,090.49					
Oriental Hotel, Ltd., Preference }		2,000	50	50				8%	for 1 year	52-50 Sales.
The Union Estate and Investment Co., Ltd. ‡	1,000,000	10,000	100	100	6,000.00	1,753.03	30-9-08	7%	for 1 year	100 Nominal.

† 285,000 unissued.
‡ 475,000 unissued.

*-Y- 390,000 issued.
110,000 unissued.

DEBENTURE LOANS.	AMOUNT OF LOAN.	FACE VALUE OF DEBENTURES.	RATE OF INTEREST.	INTEREST PAYABLE.	CLOSING QUOTATION.
Brett & Company, Limited	11,500.00	100.00	7%	1 June and 1 Dec.	95 Sales.
Yokohama United Club	250,000.00	100.00	7%	30 June and 31 Dec.	100 Sales.
Oriental Hotel, Limited	350,000.00	100.00	8%	1 April and 1 Oct.	103.50 Sales.
Union Estate and Investment Co., Limited	250,000.00	100.00	6%	30 June and 31 Dec.	95 Sellers.

JAPANESE STOCKS.	FACE VALUE.	AMOUNT PAID UP.	LAST DIVIDEND.	DIVIDEND PAYABLE.	CLOSING QUOTATION.
Bonds & Debentures.					
Exchequer Bonds 2nd issue	-Y-100	-Y-100	5%	March and Sept.	-Y- 99.50
Exchequer Bonds 3rd issue	100	100	5%	March and Sept.	,, 99.50
Consolidated Bonds (Seiri)	100	100	5%	June and Dec.	,, 100.70
War Bonds (Gunji)	100	100	5%	June and Dec.	,, 100.70
Imperial 5% Bonds	100	100	5%	March and Sept.	,, 99.40
Special 5% Bonds (issued 1906)	100	100	5%	June and Dec.	,, 100.60
Yokohama Water Works Bonds	100	100	6%	June and Dec.	,, 107.00
Yokohama City Public Loan Bonds	100	100	6%	March and Sept.	,, 105.50
Osaka City Harbour Construction Bonds	100	100	6%	June and Dec.	,, 105.50
Osaka City Public Loan Bonds	100	100	6%	June and Dec.	,, 105.50
Kawasaki Dock Yards Co.'s Debentures	100	100	7%	June and Dec.	,, 105.50
Tokyo Race Associations "	500	500	30%	June and Dec.	,, 105.50
Railways & Electric Trams.					
Tokyo Railway Company, Limited	50	50	5 2/5%	June and Dec.	,, 73 20
Yokohama Electric Tramway Company, Limited	50	50	6%	July and Jan.	,, 53.00
Keihin Electric Tramway Company, Limited	50	50	6%	June and Dec.	,, 59.80
Southern Manchurian Railway Co., Ltd.	100	20	6%	June and Dec.	,, 50.00
Hanshin Electric Tramway Co., Ltd.	50	50	12%	May and Nov.	,, 121.00
Cotton Spinnings.					
Kanegafuchi Cotton Spinning Company, Limited	50	50	14%	July and Jan.	,, 116.50
Fuji Gassed-yarn Company, Limited	50	50	14%	July and Jan.	,, 108.40
Tokyo Cotton Spinning Company, Limited	50	50	8%	July and Jan.	,, 50.70
Imperial Hemp Weaving Company, Limited	50	50	12%	July and Jan.	,, 75.80
Nisshin Boseki Kabushiki Kaisha	50	17½	7%	—	,, 17.95
Sugar & Beer Cos.					
Dai-nippon Sugar Refinery Company, Limited	50	50	....	May and Nov.	,, 22 50
Ensuiko Sugar Refinery Company, Limited	50	20	20%	June and Dec.	,, 53 20
Dai-nippon Beer Company, Limited	50	50	12%	July and Jan.	,, 84.65
Kirin Brewery Company, Limited	50	50	7%	July and Jan.	,, 53.00
Docks & Steamships.					
Yokohama Dock Company, Limited	50	33	12%	June and Dec.	,, 60.00
Uraga Dock Company, Limited	50	50	....	July and Jan.	,, 8.00
Kawasaki Dockyard Company, Limited	50	50	12½%	Feb. and Aug.	,, 57.00
Nippon Yusen Kaisha	50	50	10%	May and Nov.	,, 95 30
Hokkaido Tanko S. S. Company, Limited	50	50	5%	July and Jan.	,, 35.00
Miscellaneous.					
Tokyo Electric Light Company, Limited	50	50	12%	June and Dec.	,, 118 00
Tokyo Gas Company, Limited	50	50	13%	July and Jan.	,, 109 20
Yokohama Union Electric Light Company, Limited	50	50	14%	June and Dec.	,, 107.50
Fuji Paper Mills	50	50	6%	June and Dec.	,, 35.00
Otaru Timber Company, Limited	50	50	....	March and Sept.	,, 9.00
Hoden Petroleum Company, Limited	50	50	20%	April and Oct.	,, 79.60
Tokyo Rope Manufacturing Company, Limited	50	50	18%	June and Dec.	,, 115.00
Japan Horse Improvement Company, Limited	50	50	....	March and Sept.	,, 15.00
Tokyo Stock Exchange Company	50	50	15 1/5%	June and Dec.	,, 231.70
Osaka Electric Light Company, Limited	50	50	16%	July and Jan.	,, 146.00
Kobe Electric Light Company, Limited	50	50	14%	July and Jan.	,, 106.00

BANGKOK SHARE QUOTATIONS

(COURTESY MESSRS. EDWARDS & CO., BANGKOK, SIAM.)

NAME.	BUYERS.	SELLERS.	LAST SALES.	ESTABLISHED.	CAPITAL.	NO. OF SHARES	ISSUE VALUE.	AMOUNT PAID UP.	RESERVE FUND	LAST DIVIDEND.
Siam Electricity Co., Ltd.	Tcs. 375	Tcs. 380	Tcs. 380	1901	£ 300,000	30,000	£ 10—	£ 300,000	Tcs. 491 338	12% Tcs. 4 bon.
Paknam Railway Co., Ltd	,, 200	,, —	,, 220	1893	Tcs. 400,000	5,000	Tcs. 80	Tcs. 400,000	,, 37,566	8%
Siam Tramway Co., Ltd	,, —	,, —	,, 108	1905	,, 1,450,000	{ 6250 Shares 7250 Deb. 1000 P. Shares	,, 100	} ,, 2,230,000	,, 1,875	—
Meklong Railway Co., Ltd.	,, —	,, 106	,, 105	1907	,, 2,230,000	22,300	,, 100	,, 223,000	,, 28 000	5%
Bangkok Manufact. Co., Ltd.	,, —	,, —	,, 132	1898	,, 400 000	4 000	,, 100	,, 400 000	,, 60,000	} 7% per for 6 months
Bangkok Dock Co., Ltd.	,, —	,, 135	,, 155	1865	,, 1,000,000	10,000	,, 100	,, 951,000	,, 220,000	
Siam Steam Packet Co.	,, —	,, 57	Par	1898	,, 190 000	3,800	,, 50	,, 191,000	,, 34,000	5%
Siam Commercial Bank	,, 1,070	,, —	Par	1906	,, 3,000,000	3 000	,, 1,000	,, 3,000 000	,, 338,850	8%
Menam Motor Boat Co.	,, —	,, 100	,, 100	1905	,, 200,000	2,000	,, 100	,, 200,000	—	6%
Transport Co., Motor.	,, —	,, 90	,, 100	1906	,, 200,000	2,000	,, 100	,, 200,000	—	—
Jenderata Rubber Co *	,, —	,, £8.—	,, 90 (for six calls)	1906	£ 40,000	4,000	£ 10	£ 7.-paid	—	—
Bagan Rubber Co.	,, —	,, —	,, —	1907	Tcs. 300,000	3 000	Tcs. 100	Tcs. 40 per share	—	—
Siam Steam Navigation Co., Ltd.	,, —	,, —	,, —	1909	,, 2,000 000	10,000	,, 200	—	,, 10,000	—
Siam Stone Works, Ltd.	,, —	,, 90	100	1909	,, 350,000	3 500	,, 100	,, 350,000	—	6% half year
Kombok Rubber Co.	,, —	,, —	19	1906	$ 300,000	30,000	$ 100	$7, per Share	—	—

PHILIPPINE SHARE REPORT

MARCH 31, 1909

Name	When Incorporated	Authorized Capital	Issue Value of Share	No. of Shares	Subscribed	Paid up	Reserve	Working %	Date	Last Dividend	Closing Quotations
American Drug Store	1908	₱ 100,000	₱1,000	100	40	₱1,000	......	₱ 5,000	Jan. 4, 1909..	......	No sellers.
*Banco Español Filipino	1851	3,000,000	200	15,000	8,439	200	₱225,000	......	......	7% for year 1909....	200 buyers
Benguet Consolidated Mining Co	1903	2,000,000	2	1,000,000	495,000	2	......	38,000	Feb. 2, 1909..	......	₱1.00.
Benguet Commercial Co., Ltd	1908	200,000	10	20,000	7,360	10	......	......	......	7% for year 1907....	₱10.
Bua Mining Co	1905	300,000	100	3,000	2,620	100	......	12,900	Dec. 5 1909.	......	₱100.
Cadwallader-Gibson Lumber Co	1908	1,000,000	100	10,000	8,650	100	......	......	......	......	No sellers.
*Camote-Clayton Mining Co	1909	400,000	10	40,000	20,000	10	......	......	......	......	₱10.
*Compania Maritima	......	1,018,000	200	5,090	5,090	200	......	......	......	......	₱50 sales
*El Varadero de Manila	......	350,000	100	3,500	3,500	100	......	......	......	......	Sellers 70
Electrical Supply Co., Inc	1909	100,000	100	11,000	500	72	......	......	......	......	No sellers
Export & Import Lumber Co	......	200,000	200	1,000	1,000	200	......	......	......	......	No sellers.
*Fabrica de Hielo de Manila	1894	350,000	50	7,000	7,000	50	......	......	......	18% for year 1908...	₱75 sales.
*Germinal Cigar Factory	1900	500,000	500	1,000	1,000	500	₱143,499	639.41	Dec. 31, 1909	15% for year 1909 and 6% on capital......	650 buyers.
H. E. Heacock Co	1909	100,000	100	1,000	800	100	......	......	......	First year..........	No sellers.
*Headquarters Mining Co. (Inc.)	1908	600,000	10	60,000	35,000	10	......	......	......	......	₱10 buyers.
Insular Lumber Co	1907	2,000,000	200	10,000	9,000	200	......	......	......	......	No sellers.
Juan Seiboth Co., Ltd	1908	150,000	20	7,500	500	20	......	......	......	First year..........	......
*La Concha Button Factory	1905	75,000	100	750	750	100	......	......	......	15% for year 1909...	₱110 sellers.
Lambert, Springer Co	1908	200,000	1,000	200	80	1,000	......	......	......	......	No sellers.
Luzon Stevedoring Co	1909	250,000	25	10,000	4,200	25	......	......	Sept. 15, 1909	15%......	₱30.
Mindanao Herald Publishing Co	1907	15.000	100	150	75	100	......	......	Dec. 31, 1908.	½ of 1% interim for 1908	No sellers.
Newspaper Publishing Co	1907	400,000	100	4,000	3,740	100	......	......	......	......	......
Minas Carbon de Batan	1902	1,000,000	200	5,000	1,523	200	......	136,812	......	......	200
Walter E. Olsen Co., Inc	1909	500.000	100	5,000	2,033	100	......	......	......	First year..........	No sellers.
Paracale Gold Dredging Co	1907	£10,000	£1	10,000	9,000	£1	......	......	......	......	No sellers.
Palomar Park Amusement Co	1908	300,000	......	300,000	60,312	.50	......	......	......	......	₱1.
Phil. Hemp Machine Co., Ltd	1907	1,000,000	100	10,000	8,500	100	......	......	......	......	₱100
Philippine Publishing Co	1907	600,000	200	3,000	2,181	200	......	......	Mar. 1st, 1909	₱3 a share for 1908..	₱50
Port Banga Lumber Co	1908	100,000	100	1,000	934	100	None.	40,000	First Saturday in January..	None......	No sellers.
The Philippine Gold Dredging Co	1907	200,000	10	20,000	20,000	10	......	......	......	......	No sellers.
*Philippine Co., Ltd	......	750,000	10	7,500	7,500	10	......	......	......	......	₱5 buyers.
Philippine Rosin & Turpentine Co	......	150,000	1	150,000	70,000	1	......	......	......	First year..........	......
Philippine Exploration Co	1908	2,000,000	10	200,000	90,000	10	......	......	......	......	No sellers.
The Rosenstock Pub. Co	1908	75,000	10	7,500	6,000	10	......	......	......	......	No sellers.
*San Nicolas Iron Works	......	300,000	500	600	600	500	......	......	......	......	₱200 sellers.
San Mauricio Gold Mining Co	1908	4,000,000	200	20,000	......	......	......		......	First year..........	₱200.
Tarlac Railway Co	1906	150,000	100	1,500	1,500	100	......	₱23,329	June 30, 1908.	......	No sellers.
Union Hemp Machine Co	1909	50,000	10	5,000	2,600	10	......	......	......	......	No sellers.
Zamboanga Cold Storage Co	1903	40,000	100	400	200	100	₱8,500	......	May 1st, 1909.	20%......	₱120.

* John T. Macleod's share list

PHILIPPINE BONDS

	Dated	Authorized	Issued	Outstanding	Par Value	Rate of Int.	When payable	Last Quotation
Philippine Friar Land Bonds	Feb. 1st, 1904	$7,000,000	$7,000,000	$7,000,000	$ 100	4%	Feb. 1, 1914	104[illegible]
Public Works and Permanent Improvement Bonds	March 1, 1905	$5,000,000	$2,500,000	$2,500,000	$ 100	4%	March 1, 1915	104[illegible]
Do.	Feb. 1, 1906	......	$1,000,000	$1,000,000	$ 100	4%	Feb. 1, 1916	104[illegible]
Manila Sewer and Water Works Improvement Bonds	June 1, 1905	$4,000,000	$1,000,000	$1,000,000	$ 100	4%	June 1, 1915	104[illegible]
Do.	Jan. 2, 1907	......	$2,000,000	$2,000,000	$ 100	4%	Jan. 2, 1917	104[illegible]
Philippine Railway First Mortgage Four per cent Thirty Year Sinking Fund Gold Bonds	July 1, 1907	$15,000,000	$5,736,000	$5,736,000	$1000	4%	July 1, 1937	97

*Payment of interest guaranteed until maturity or redemption by the Philippine Government.

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THE FAR EASTERN REVIEW

COMMERCE ● ENGINEERING ● FINANCE

VOL. VI. MANILA, P. I., SHANGHAI, AND YOKOHAMA, MAY, 1910 No. 12.

THE PHILIPPINE RAILWAY CO.

When the bids were opened on December 20th, 1905, in response to the advertisement of the Philippine Government for bids on railway construction in the Philippines, among the three submitted was that of Messrs. J. G. White, Inc., of New York and Manila, representing a large syndicate of American capitalists. The bid presented had reference only to the railways proposed in Cebu, Panay and Negros and provided for a government guarantee of four per cent. As described in the advertisement, these proposed lines were as follows:

On the Island of Negros.—A line in the island of Negros from the harbor of Escalante on the North-East coast of said island, westerly, following coast line to Himamailan, a distance approximately of 100 miles.

On the Island of Panay.—A line from Iloilo in the Province of Iloilo and Island of Panay, in a Northerly direction, forking to the towns of Capiz and Batan, on the North-East coast of the Island of Panay, in the Province of Capiz, a distance approximately of 100 miles.

On the Island of Cebu.—A line on the Island of Cebu, running North from the City of Cebu to Danao, on the east coast, and South from the city of Cebu to Argao, on the east coast, with the option of a line across the island from Car-Car or Sibonga to the West Coast, and thence along the coast between Dumanjug and Barili, a distance approximately of 95 miles.

The syndicate represented by Messrs. J. G. White & Co. was incorporated under the title, "The Philippine Railway Company," and was composed of Messrs. William Salomon & Company, Charles M. Swift, Cornelius Vanderbilt, Messrs. J. G. White & Co., Inc., Heidelbach, Ickelheimer & Co., the International Banking Corporation and several other prominent financiers with Mr. William Salomon, Chairman of the Board of Underwriters.

The contract for construction was let to the firm of Messrs. J. G. White & Company, Inc., one of the largest contracting firms in the world, and their representative, Mr E. J. Beard, in the capacity of Chief Engineer, arrived in the Philippines in June, 1906, to take charge of location and construction, in which capacity he remained for about two years.

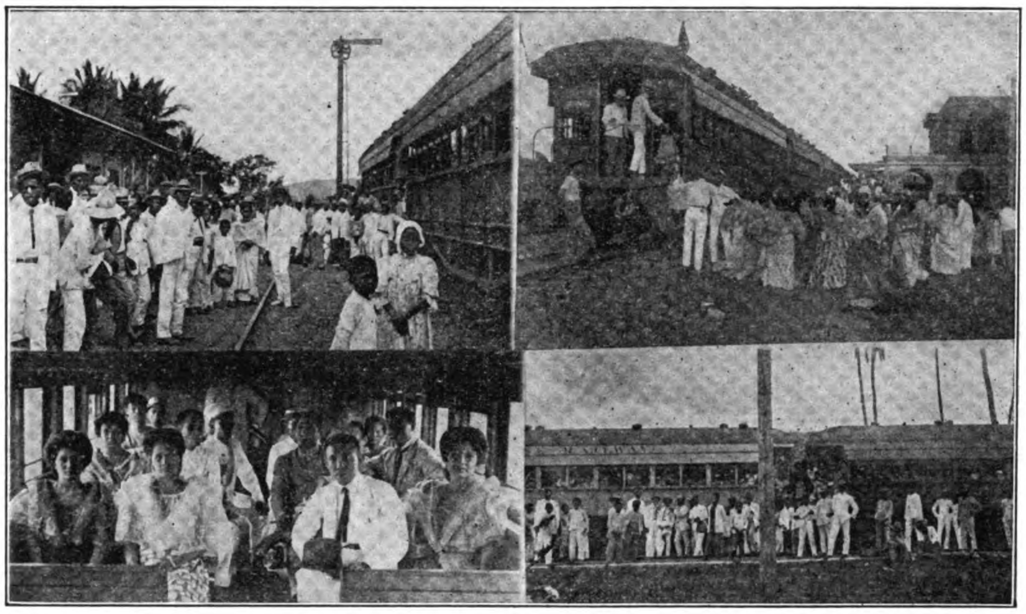
Five locating parties were organized and began work at once on the three islands and after a strenuous experience in overcoming the many serious obstacles presented by the wild interiors, especially of Panay and Negros, concluded their work of final location, but only after 1,950 kilometers of survey line had been run. It must be remembered that the lines proposed penetrated jungle and wild lands not before inhabited, lacking roads, bridges or even trails in many sections.

Cebu Island, located about 400 miles south of Manila, has an area of 1762 square miles, with a population of 590,000. Along the line of railway there is a population of about 310,000 or about 5,158 to the mile of line. The density is about 515 in the territory feeding the line.

Cebu, the principal city, has a population of 56,000, and the trade of this port aggregated 43,000,000 pesos for the year 1907. Other towns with populations are: Danao, 16,000; Talisay, 10,000; Naga, 12,000; Carcar, 25,000; Sibonga, 18,000; Argao, 16,000. The island produces hemp, tobacco, sugar, copra, corn and rice. Indeed, the export of hemp from Cebu makes it the leading shipping port for that product in the Philippines.

The Island of Panay lies about 300 miles south of Manila with an area of 4,600 square miles and a population of 745,000. The line of railway serves a population of 315,000 or 3,500 a mile with a density per square mile of 200. The land is fertile along the railroad and most of it is under cultivation. The principal products are rice, copra, tobacco, sugar, hemp, native cloths and dried fish. Iloilo

(Continued on page 546.)



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THE FAR EASTERN REVIEW

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THE DEATH OF HIS MAJESTY, KING EDWARD VII

The sad news from London, under date of May 7th, announcing the death of His Majesty after but three days' illness, came as a shock not only to all British subjects throughout the Far East but to citizens of all nationalities. It was known that the King was indisposed, but none realized the seriousness of his condition. Indeed he may be said to have died in the harness discharging his many duties up until a few hours previous to his passing out. Evidences of the love and respect in which the popular monarch was held were everywhere marked by the tributes paid to his memory wherever two or three were gathered together during the last week. Memorial services have been arranged in every port in the Orient. In Manila the Americans will join with the British colony in paying their respect to the memory of the dead monarch.

It may well be said that the late King enjoyed the love and admiration of all his subjects, and for a life service in the interests of peace he will go down in history as Edward the Peace-Maker.

The sympathy of the civilized world goes out to the bereaved Queen-Mother whose many graces have endeared her to all peoples, and to Their Majesties King George and Queen Mary.

THE CHINA ASSOCIATION AND THE RAILWAYS

In its annual report the China Association devotes some space to comment on the railway situation and does not incline to support the view that the "Pukow terms" give adequate guarantee of the proper expenditure of foreign loan funds and bases its attitude on the incidents in connection with the scandal on the German section of the Tientsin-Pukow line. With reference to the attitude of the Chinese to foreign loans the report states:

"The main point of interest is the influence which has been exercised over railway development through the remarkable growth of what is known as the 'China for the Chinese' movement, and the resistance which the provincial leaders of that movement oppose to foreign enterprise in the Empire, despite concessions obtained through Peking. The movement is a remarkable one; no doubt it appeals, and is meant to appeal, to the people as patriotic, but more probably it has its foundation in the desire of its promoters to retain for themselves the opportunities of illicit gain which attach to native-managed enterprises. Anyway, it would seem to be certain that this 'Revolt of the Provinces' (as it has come to be called) finds its strength, in this as in other directions, in a provincial appreciation of the weakness and incapacity of the Central Government, and in the belief that the orders of Peking may be disregarded with impunity. There can be little doubt that the 'loan terms,' which foreign lenders to China have found it necessary to impose for their own protection, are resented by a large and increasingly powerful section in China. There ought not to be any reason why China should not be freely offered foreign capital for the exploitation of her enormous potential wealth in the same way as money is lent to other countries; but the Government of China, being what it is, simply compels lenders to safeguard themselves through 'loan terms' which under other conditions would be unnecessary."

This indicates a growing appreciation of the rapidly changing disposition of the Chinese in their relation to foreign lenders. While the Association is not ready to approve of the Pukow terms, yet the report does imply that future agreements must be more liberal in their character before they receive the endorsement of that class of Chinese who are rapidly being recognized as "increasingly powerful" in the direction of Chinese affairs. Just what concession the Association would recommend does not appear, but we are led to gather therefrom that the present prospect is not conducive to the arranging of a loan on the old loan terms and that some adjustment will be necessary in future if foreigners are to participate in the railway program.

It might be said that while on the Northern Section of the Tientsin-Pukow some irregularities have been noted, yet we have not heard that there is any danger of the loan being endangered. It is also true that irregularities are not confined to the Chinese, yet we understand that the Chinese have been as prompt in punishing the offender as have any foreign government confronted with a similar situation.

We have reason to believe that much of the difficulties in the way of arranging foreign loans in China might be the more easily adjusted if more consideration were given the point of view of the borrowing nation. The hard and fast terms heretofore required have made an undesirable impression and this impression has been developed into a serious prejudice by widespread exaggeration and misrepresentation.

To overcome this, the open mind on either side must characterize the conduct of negotiations, and by thus establishing a basis of mutual confidence, many obstacles, now apparently unsurmountable, would disappear.

The Chinese have asked to be recognized as a responsible nation and to be permitted the privilege of expending money borrowed and for which is given adequate security, in their own way. They can point with some pride to not a few success in railway building accomplished without foreign supervision of expenditure and it would seem that this should entitle them to a measure of consideration, the refusal of which must undoubtedly result in widespread and continued resentment.

PHILIPPINE ROADS AND RAILWAYS

The program of development in the Philippines since American occupation includes one of the most extensive of campaigns to bring the most isolated section of the islands within reach of a market for its products. This involves the construction of roads of permanent character throughout the provinces and connecting lines of railways leading to Manila on the Island of Luzon while the islands of Cebu, Panay, and Negros are also being provided with railways running through the fertile districts and bringing the agriculturalists within easy touch with the ports.

When the islands were ceded to the United States by Spain the only railway operating was that of the Manila and Dagupan which runs through one of the richest sections of Luzon. It became apparent to the Philippine Government that little progress could be made in developing the country without additional lines giving the producer easy access to a market. And to make it possible for outlying sections to enjoy the benefit of railways, it was necessary to construct a comprehensive system of highways. According to the figures given out recently by Mr. Charles M. Pritchett, chief road inspector, the nucleus of this gigantic system is represented by about 9,000 kilometers of permanent roads to cost, approximately, P120,000,000. The Bureau of Public Works is expending over P5,000,000 annually in the construction of permanent roads and bridges and it is not improbable that this annual amount will be increased. Of the money thus expended the Insular Government furnishes about P1,500,000 and the provincial and municipal governments the balance annually.

The Philippine Government railway program includes a net work of railways throughout Luzon that will leave few agricultural districts without ample means of transportation. The same might be said of the Visayas. In order that sufficient capital might be available for this important work the Insular Government authorized a guarantee of four per cent. on railway bonds to the amount of $30,000,000. This guarantee was first made in connection with the lines of the Philippine Railway Company in the Visayas, but last year under a new arrangement with the Manila Railway Company who secured the concession for the lines in Luzon, the government guarantee of interest on bonds was extended to some of them also. In all, the Philippine Railway Co. concessions cover approximately 368 kilometers and the Manila Railway Company 1,355 kilometers, so that when these lines are completed and operating there will be about 1700 kilometers in operation.

Most satisfactory results have already been noted where new railway lines are operating. Many new tracts of country along them have been opened up, and what was previously jungle and waste lands are now producing abundantly. In many outlying sections where formerly the native found it impossible to market his produce at a profit for lack of roads and transportation, there was little inducement to industry. Now this isolation is being overcome and the native farmer enjoying a market, is doubling and trebling his crops. In Negros and Panay the area of sugar lands in process of development through which the Philippine Railway lines pass are probably the most desirable in the world. And in Cebu there has been noted already a marked increase in product and indications of greater activity in agricultural pursuits.

Taken altogether, the road building and railway program in the Philippines is one of the greatest importance and no one has greater interest in its early realization that His Excellency, the Governor-General. He has endeavored in every way to encourage intercommunication by land and sea and under his administration there is reason to believe that not only will the present plans be realized but that additional lines will be constructed to meet the growing demands of the country which is now rapidly responding to the policy of a liberal Government.

H. E. CHEN KUEI-LUNG, VICEROY OF CHIHLI

H. E. CHEN KUEI-LUNG, VICEROY OF CHIHLI, THE METROPOLITAN PROVINCE

Few, if any, of the prominent officials of China may point to a more rapid advance in rank and distinction than H. E. Chen Kuei-Lung, the newly appointed viceroy of Chihli. It may be said that his official career began with his appointment as Vice-Governor of Peking in June, 1900, and his promotion in September of that year to the post of Governor. This was followed in May, 1901, by his appointment to the post of Commissioner of Finance in Honan which lasted but seven months when he undertook the duties of Director General of Grain Transport. This position occupied his attention until April, 1903, when he received his first appointment as provincial governor, assigned to Honan with which province he had been identified more familiarly than any section of the empire. In February, 1906, he was appointed to the post of Governor of Kiangsu and in September, 1907, was made Governor General of Szechuen. He did not proceed to this post and was transferred in March, 1908, to the post of Viceroy of Hu-Kuang. He remained in this capacity until appointed to his present position, the important post of Viceroy of Chihli.

Little seems to be known of the new viceroy beyond his rapid rise in ten years of official life from the rank of Vice-Governor of Peking to one of the most important positions in the imperial gift. There is every reason to believe that he enjoys the confidence of Peking and that in placing him in control of the destinies of Chihli, the Imperial authorities believed that he was the man best equipped among those oficials available to carry out the Imperial wishes.

It might be said that the Viceroyalty of Chihli has never been a bed of roses. It has meant the blasting of not a few careers that looked as bright as that of H. E. Chen Kuei-Lung upon appointment. A successful Viceroy of Chihli has little in the future to look forward to and too great success in that position has its dangers as some are in a position to testify. The new Viceroy, however, has not yet had much opportunity to demonstrate his adaptability, but, from indications, it is his purpose to master the position and apply his best effort to the solution of the many problems that confront him.

Upon his appointment he proceeded to Peking and outlined a plan of administration that appears to have received the approval of the Prince Regent. His personality seems to have made a favorable impression in the capital and there is no reason to doubt his success if these conditions continue. We are informed that when the news of his appointment was received by the people of Chihli there was much shrugging of shoulders with apparently no reason beyond the fact that a change in the Viceroy's office does not tend to encourage a feeling of security among the subordinates. This feeling seems to have been allayed and it may be that the new Viceroy's announcement that he would make no changes in the personnel may have had something to do with the change of heart.

And yet His Excellency had in view a policy of curtailment that gave every evidence of making him unpopular. Fortunately he carried out his plan of amalgamating bureaux and abolishing useless divisions in a manner that showed unusual capacity and tact. For instance, the special bureaux established during the Boxer troubles have been continued up to the present time, although they have long survived their usefulness. The new Viceroy began lopping off by abolishing the Bureau of Charity, the Bureau of Water Utilization, the Bureau of Construction, etc. Together with the amalgamation of a number of bureaux and sub-divisions, this retrenchment meant a saving of approximately Tls. 200,000. This meant the discharge of a large number of employees who had enjoyed the benefit of a place on the government payroll. In letting them out, he informed them that there were no funds to maintain them longer, but gave them the opportunity of attending the Institution for the Study of Constitution with an allowance of Tls. 16 per mensem.

We learn that when the new Viceroy had lopped off all the dead branches and exhausted all effort at retrenchment, he found that a large deficit remained. He no doubt believed that there was a limit set to reforms and retrenchments beyond which a new Viceroy should hesitate to go. He was already unpopular among a large class for his activity in this direction and he wisely placed his resignation in the hands of the Peking authorities. They refused to accept it which was practically an endorsement of his program. This is probably what he wanted. Now he is busy devising means to overcome the deficit and with the Peking authorities behind him there is little doubt that he will find means to do it.

A report from Tientsin is to the effect that the new Viceroy is using his good offices to arrange the settlement of the outstanding accounts held by foreigners against Chinese dealers and that there is reason to believe that this matter of vital importance to trade will be adjusted in the near future.

And so there is much to the credit of H. E. Chen Kuei-Lung, even during his first few months in office, and that he is establishing himself in a manner that will assure a successful term as Viceroy is generally admitted.

THE PHILIPPINE RAILWAY CO.

(Continued from page 543.)

with a population of 45,000 is the southern terminal of the line and is the largest sugar port in the Philippines. It is the outlet for not only all the sugar of Panay, but of the rich island of Negros as well. The Iloilo exports of sugar for 1908 amounted to 140,000 tons valued at ₱9,000,000 and in 1909 a great impetus was given the industry by the passage of the Payne Bill giving free entry to the American market for this product. Much land suitable for sugar cultivation has been made available by the railway and a large increase in production may be expected.

The following towns, with population given, are located on the line: Santa Barbara, 23,000; Pototan, 21,000; Passi, 7,600; Dumarao, 5,500; Dao, 6,700; Capiz, 18,500; Batan, 14,000.

In Negros, with an area of 4,881 square miles and a population of 460,000, the railway line will serve about 250,000 with an average of 3,720 per mile of road and a density of 150 per square mile of territory affected. The western half of the islands is the great sugar producing region of the Philippines and it is this section through which the railway will operate. The capital of Western Negros, Bacolod, is the terminus of the proposed line, and it will be connected with the terminus at Iloilo, in Panay, by a railway ferry over a distance of 25 miles. As Negros is without a good harbor, it is the purpose of the company to construct one at Bacolod. The following towns are along the route of the line: Bacolod, 15,000; Silay, 25,000; Saravia, 13,000; La Carlotta, 17,000; La Castellana, 5,000; Isabela, 16,000; Cabancalan, 24,000. The principal products are sugar, copra and rice and lumber. Large areas of sugar lands will be opened up by the railway and the production of sugar in the island, which is approximately 115,000 tons annually, should rapidly increase with improved transportation facilities and a permanent market.

The construction of the line in Negros will not include any heavy grading, but as there is a number of wide and deep rivers to cross, it will bring the cost up while the pier and breakwater work at Bacolod will add a heavy charge to construction of the line. Its successful operation will depend largely upon the development of the sugar industry. Definite location of the line has been completed but no construction work has been done up to this time.

The only change made from the route as described in the original concession is the elimination of the line along the North Coast of Negros from Escalante to Saravia and the addition of an extension from Himamailan southward to Cabancalan making in all a distance of 75 miles, instead of 100 as originally estimated.

Cebu, Construction.—Much of the grading on this line was exceedingly heavy, and this, with the large number of rivers and streams to bridge, made the construction very costly, although no engineering difficulties were encountered. The necessity of combating the floods of the rainy season had to be considered in the construction of bridges, and while many of the streams are insignificant in the dry season, during the heavy rains, they become swollen torrents. In all on this line the bridges aggregate over a mile in length, all built of concrete and steel and requiring over 20,000 yards of the former and 2,000 tons of the latter in their construction.

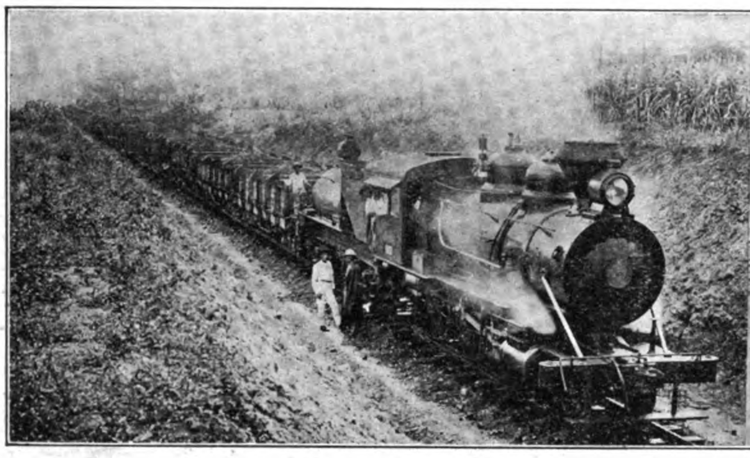
At sub-grade the standard width of the roadbed was built 14 feet on the shoulders with allowance for shrinkage and heavy rains. In conformity with the Philippine Government regulations the gauge is 3 feet 6 inches, as provided for all the railways in the islands. Australian sleepers were used in the early construction, but the native hardwood tie was later substituted and is now used exclusively by this company in all its construction. The sleepers are 5 in.×8 in.×7 feet and native hardwood is expected to last at least 15 years. The maximum grade is one per cent. and the maximum curvature six degrees. The construction over the swamps and low lying agricultural lands was in many places very costly as roadbed sank in some instances from five to eight feet. In all 1,860,000 cubic yards of earth were moved.

Ballast pits were located in the river beds and gravel used exclusively. The ballasting was expedited by a special dredge designed by Chief Engineer Beard to load the gravel from the pits to the ballast cars.

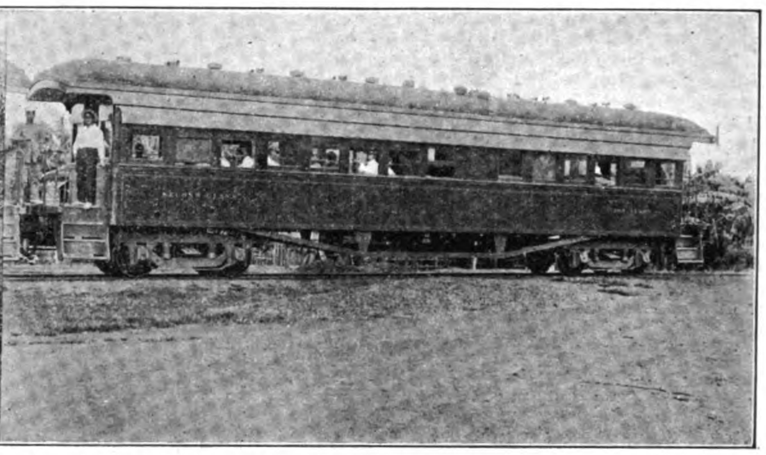
There are 22 station buildings divided into first, second and third class built of reinforced concrete and, indeed, in all the buildings concrete and steel were used as may be seen in the illustrations herewith. This class of permanent construction was believed desirable even at a much higher first cost in view of the serious deterioration caused by the climate and the activity of the white ant as well as the security from loss by fire.

Sixty pound steel was used for the entire length of the line with exceptions of 20 miles near Cebu laid with 70 pound steel. It was supplied by the United States Steel Products Company.

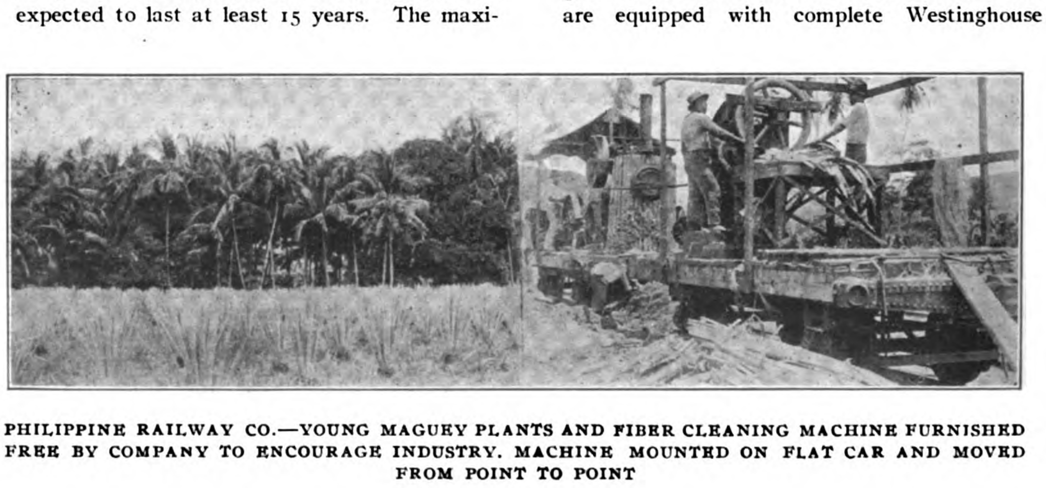
Equipment.—A and B type Baldwin locomotives furnished by the Baldwin Locomotive Company are in service. One is a 45-ton for heavy construction and the other 30-ton used for passenger and mixed traffic. A German locomotive is used for switching. The passenger coaches have a steel under frame and are equipped with complete Westinghouse



PHILIPPINE RAILWAY CO.—BALLAST TRAIN OF 15 RODGER'S DUMP CARS AND CLASS "A" BALDWIN LOCOMOTIVE



COMBINATION FIRST AND SECOND CLASS COACH



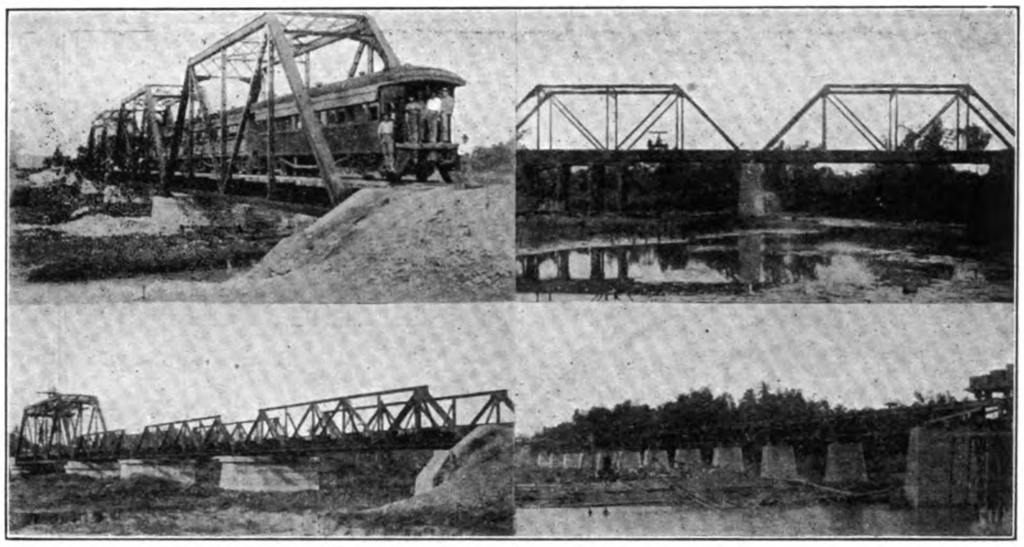
PHILIPPINE RAILWAY CO.—YOUNG MAGUEY PLANTS AND FIBER CLEANING MACHINE FURNISHED FREE BY COMPANY TO ENCOURAGE INDUSTRY. MACHINE MOUNTED ON FLAT CAR AND MOVED FROM POINT TO POINT

Airbrake and signals. The first class and parlor coaches are finished in teak and the second class in sheathed yellow pine. The freight car equipment includes ten and twenty ton steel frame convertible from flat to box, thirty ton wooden ballast cars and forty ton wooden construction flats, all equipped with conductor's air, M. B. C. Standard couplers and air-brakes. The telegraph lines are strung with no. 10 copper wire with selector telephones for dispatching, and stations are equipped with train order signals. Dispatcher's block system is used in operating the line. The terminal yards are at Cebu and a double track extends tose the wharves along the a wall for transfer of freight directly on board vessel. The terminal buildings include machine and woodworking plants, power house, roundhouse, coach sheds, lumber sheds, turntables, freight and office buildings, all constructed of reinforced concrete.

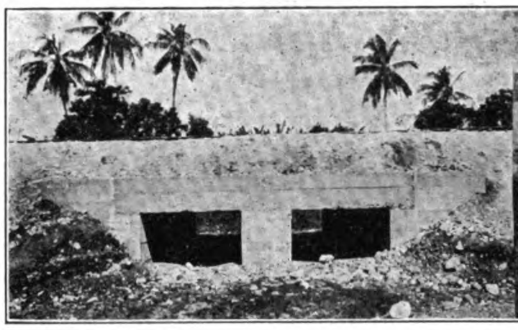
Operation.—For maintenance of track Filipino labor is utilized under the supervision of white foremen. The mechanics in the shops include natives and Chinese working under white supervision. Filipinos are also employed for clerical work as well as agents and operators, and the management have found them very satisfactory in each of these capacities. The conductors and engineers are Europeans, but it is expected that Filipinos will be substituted, with the exception of a few Europeans retained as instructors. As evidence of the accuracy of the native operators, the Standard Code of the American Railway Association is used in dispatching by telephone, and so far there has been no complaint as to their ability or adaptability to work accurately with great dispatch. There are eight regular mixed trains, four daily in each direction, making from 25 to 30 miles an hour between stations.

The railway in Cebu is enjoying a steady increase in both passenger and freight traffic as the value of rapid transit is being appreciated by the natives. The lack of work animals resulting from rinderpest and surra has crippled the native farmer and his earning capacity is greatly curtailed. The soil is only tilled to a limited extent.

The Philippine Railway Company is endeavoring to encourage the natives of Cebu in the cultivation of maguey and, cooperating with the Philippine Agricultural Bureau, has already distributed over 2,000,000 plants free of charge. In addition to this the company has a maguey stripping machine which is installed on a flat car and moved from point to point to strip the plant without charge. The result has been great interest among the native farmers in this industry and it is expected that the export of this product alone will result in many millions of dollars coming into the province. An effort is being made to induce the farmer to undertake the very best methods of culture and already the improved returns received on the better quality of fiber has impressed the planter with the advantages of giving his best attention to the growing plants. The development of the sugar and tobacco growing industry in Cebu gives promise of large returns, and with better transportation facilities and prices, the native will be encouraged to do his share. In the meantime an effort is being made to increase the supply of work animals with government aid and a well organized campaign against

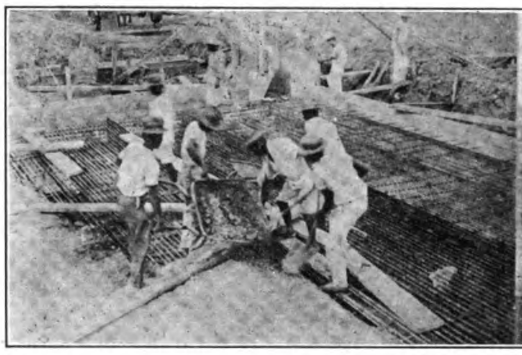


PHILIPPINE RAILWAY CO.—TYPES OF BRIDGE CONSTRUCTION IN CEBU AND PANAY:—(1) STANDARD 100-FOOT SPAN BRIDGE—(2) POTOTAN RIVER BRIDGE TWO 100-FOOT SPANS—(3) COT-COT RIVER BRIDGE NORTH OF CEBU—(4) APPROACH TO JALAUR RIVER BRIDGE RAISED ON ACCOUNT OF HIGH WATER



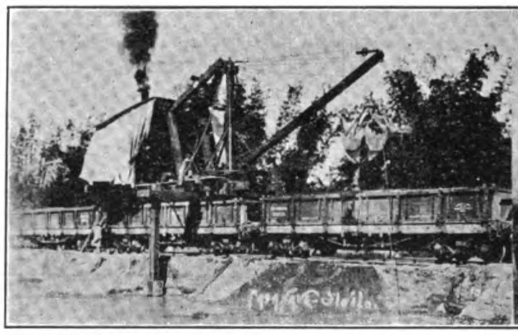
PHILIPPINE RAILWAY CO.—STANDARD DOUBLE 16-FOOT REINFORCED BOX CULVERT

BRIDGE IN CEBU SHOWING ENLARGED FOUNDATIONS ON ACCOUNT OF SOFT BOTTOM

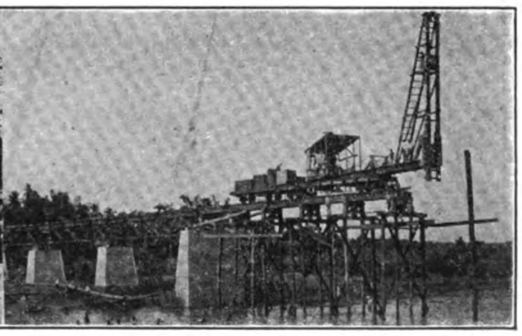


PHILIPPINE RAILWAY CO.—REINFORCED DECK BOX FOR CULVERT IN PANAY

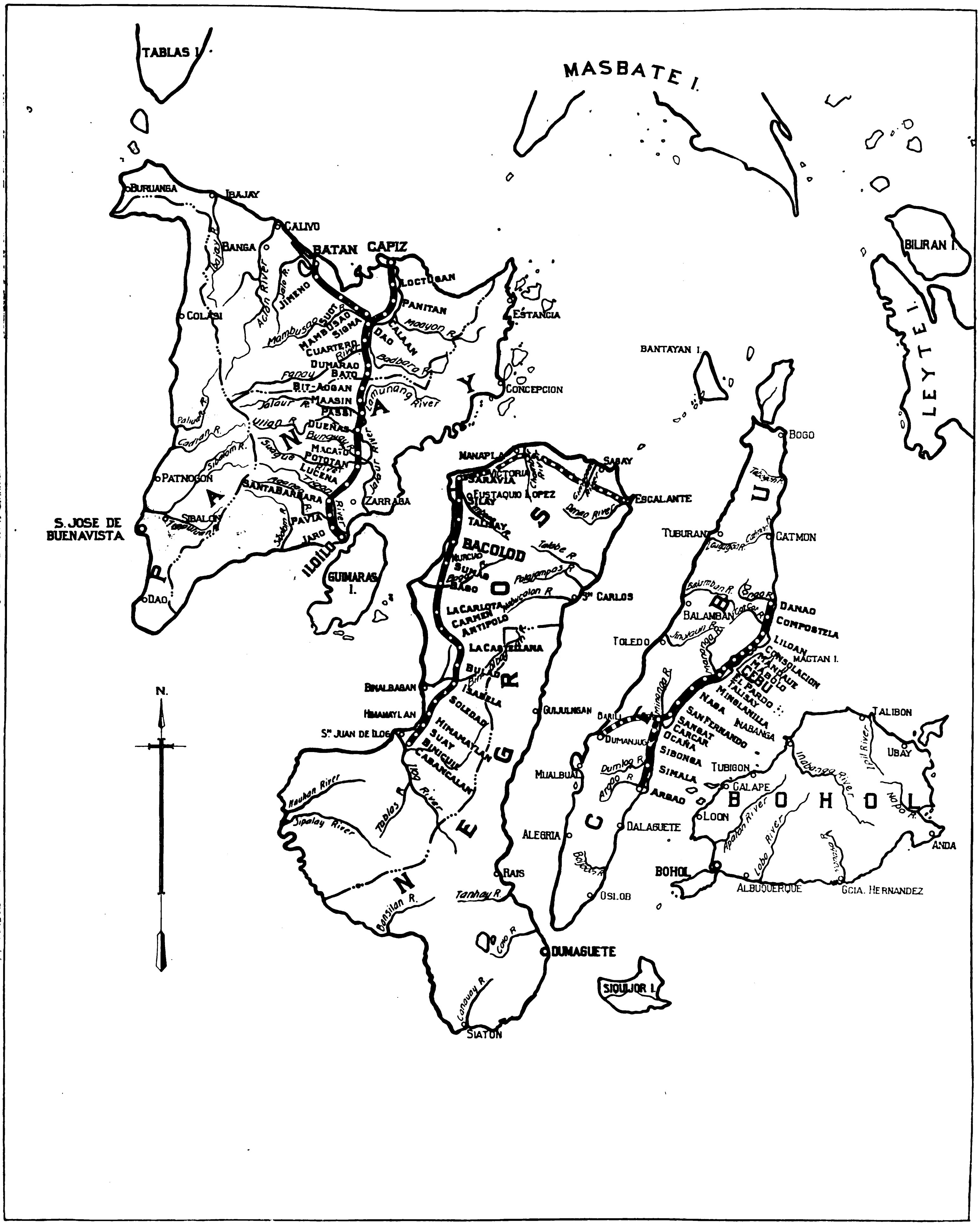
NATIVES MIXING CONCRETE



PHILIPPINE RAILWAY CO.—LOADING GRAVEL FOR BALLAST FROM SANTA BARBARA RIVER, PANAY



DRIVING FALSEWORK AT JALAUR RIVER, PANAY



Courtesy Manila Bulletin.

THE VISAYAN GROUP SHOWING LINES OF THE PHILIPPINE RAILWAY COMPANY, AS ORIGINALLY PROPOSED.—THE SECTION BETWEEN SARAVIA AND ESCALANTE IN NEGROS IS NOW ELIMINATED

rinderpest is to be maintained as evidenced by a liberal appropriation made for this purpose for the year.

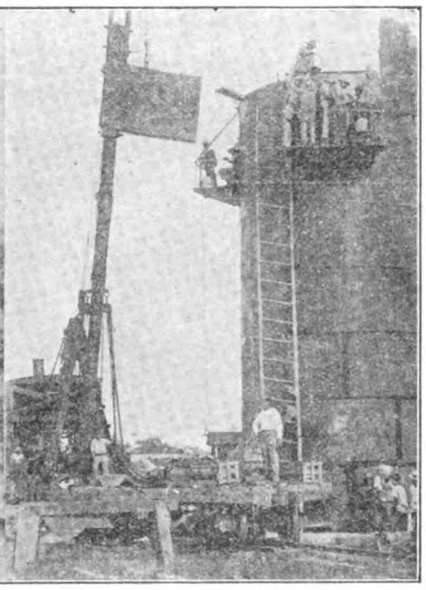
Panay Construction.—The construction in Panay is progressing rapidly and it is expected that the line will be opened from Iloilo to Capiz by June, this year. The work of construction has been conducted from both ends simultaneously. The line from Iloilo to Passi, about 34 miles northward, is across an alluvial plain intersected by a few heavy ridges, the latter making very heavy work. From the latter point to Dumarao the water shed is crossed that practically divides the island of Panay into two great fertile plains. The southern approach to the summit is a maximum grade of one per cent. and on the north approach the grade is one-and one-half per cent. for about a mile. The balance of the line from the watershed to the northern terminus at Capiz is across level country interrupted y irregular ranegs of hills. The construction in the flat country is exposed to serious floods during the rainy season and it was necessary therefore to make fills ranging from fifteen to twenty-five feet. This, together with the heavy work in the hills and the many rivers to bridge, brought the cost up very high. The total grading is estimated at almost 4,000,000 cubic yards and the steel and trestle bridges aggregate in length over one and three-fourths miles. The Panay river bridging aggregated in all 2,250 feet of steel and approaches. In all in Panay when the line is completed there will have been used over 3,000 tons of steel and 45,000 cubic yards of concrete construction.

The main terminal is at Iloilo, and at this point the company has secured a site on the waterfront for large warehouses with a depth of water alongside of 24 feet so that freight may be transferred to vessels at minimum expense and maximum expedition. The site was practically an island forming one bank of the Iloilo River and much of the ground had to be filled in. The foundations for these buildings were laid on reinforced concrete piles. The central machine shops, etc., for not only Panay, but the Negros division as well, are located here and approximately 750,000 pesos is the estimated expenditure including warehouses and wharves. The shops are so equipped that the company can build its own locomotives if necessary.

Cebu and Panay Equipment.—In all on the two divisions there are 14 locomotives, 32 passenger cars, and 184 freight and work cars.

Operation.—The same standards are maintained as in Cebu as well as the character of the skilled and unskilled labor.

PHILIPPINE RAILWAY CO.—ASSISTANT CHIEF ENGINEER HARRIS' GASOLINE MOTOR CAR



ERECTING WATER TANK IN CEBU YARD

Future Prospects.—As in Cebu, but perhaps more serious, has been the damage to industry by the rinderpest and surra among the stock, and at the present time many formerly prosperous communities are suffering from extreme poverty. From statistics available not over one-fifth of the rich improved lands are now under cultivation and, instead of a steady development of wild lands and the annual increase of the area under culture, many sections do not produce one-tenth of the returns of say a decade ago. Vice-President Poland is quoted with reference to Dumarao, a town about 45 miles north of Iloilo, as an example of the disaster that has blasted the producing capacity of the communities in Panay. This town in 1898 had 650 head of horses, 6,000 head of cattle and 3,550 head of carabao. That year the town produced 400,000 cavans of palay, over 100 tons of tobacco, 15,000 piculs of sugar and a large quantity of hemp. At the present time the town does not possess a horse and the carabao and cattle number 320 and 14 respectively. The production of palay does not now exceed 60,000 cavans and the hemp, tobacco and sugar product is practically nil. The company is assisting the native to develop this section by distribution of seed and encouraging industry. In this the Philippine Government is giving its generous support. With work animals or machinery Panay province would become one of the most prosperous in the archipelago. Iloilo province alone heretofore exported about 2,50,000 tons of rice annually, last year over 21,000 tons were imported. It should not only supply the domestic consumption, but the shortage in the surrounding islands instead of that supply coming from the China coast. There is a fertile plain thirty miles in length suited to the cultivation of rice, sugar, tobacco, corn, etc. Most of this area can be cultivated by machinery. The native is still using the crudest methods of farming and the antiquated mills available make it impossible for him without money to secure from the land over four per cent. of what might be realized with more modern machinery and methods.

Once the country has attracted the necessary capital for the cultivation of sugar and tobacco so that the greater part of the fertile land in the island is producing, an era of prosperity heretofore undreamed of will be the portion of the natives of this rich island. And with the great problem of transportation solved by a modern railway tapping all the most productive country, this future cannot long be withheld.

During the last few months many capitalists have become interested in the sugar and tobacco industry in the islands and there is promise that Panay will receive her portion of attention in view of the fertility of her soil and the adaptability to the production of these two staple products now enjoying a steady market.

Without the lines of railway in Cebu and Panay, little could be expected for the future of these two provinces and, perhaps, no investment offers better returns on capital than the Philippine Railway company once the inhabitants of the territory through which it runs recover from the depression of the last decade and new capital and modern enterprise find expression in flourishing crops and contented inhabitants. It may well be said that the Philippine Railway has taken the lead in the most important pioneer work in the Philippines since American occupation.

The following are the officers of the Company:

William Salomon, Chairman of the Board, New York.
Chas. M. Swift, President, New York.
Frederic H. Reed, Vice-President, New York.
C. Lewis, Vice-President, New York.
W. B. Poland, Vice-President and Chief Engineer, Manila.
J. M. Weinberger, Treasurer, New York.
R. R. Hancock, Secretary, New York.
A. Strausz, Jr., Auditor, Manila.

Executive Committee

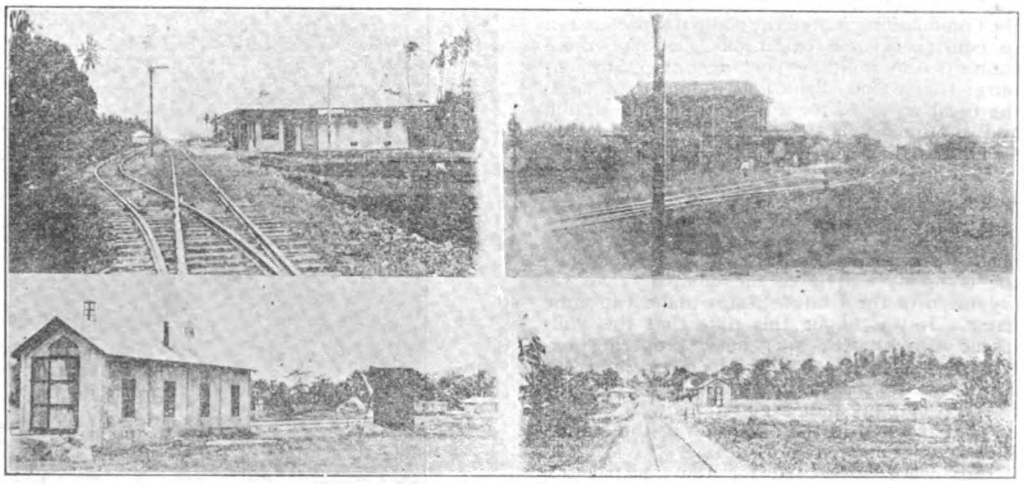
Thos. H. Hubbard, C. Lewis, William Salomon, Cornelius Vanderbilt, and J. G. White.

Directors

Gen. C. R. Edwards	Gen. Thos. H. Hubbard.
C. Lewis	Maj. Frank McIntyre.
Alonzo Potter	Wm. Barclay Parsons.
Frederic H. Reed.	William Salomon.
Chas. M. Swift	Cornelius Vanderbilt.

J. G. White.

Mr. Poland is the Chief Executive and Representative of the Syndicate in the Philippines.



PHILIPPINE RAILWAY CO.—(1) STANDARD 2ND CLASS STATION LAYOUT SHOWING PASSING SIDING, TOOL BLOCK SIGNAL.—(2) VIEW OF NORTH END OF CEBU YARD.—(3) ENGINE SHED AT ARGAO.—(4) STANDARD STATION LAYOUT AT CARCAR WITH LOGE, ENGINE HOUSE AND SECTION FOREMAN'S HOUSE

THE MANILA RAILWAY COMPANY

The history of railways in the Philippines dates from April, 1887, when the Manila Railway Company, a British corporation, secured a concession from the Spanish Government for the construction and operation of a railway connecting Manila and Dagupan. The concession extended over a period of 99 years and carried a guarantee from Spain of 8% on the capital invested. The sum representing the capital carrying this guarantee was originally fixed at $4,964,000 to be raised later to $5,373,700. The concession also provided that at its expiration the road would revert to the Spanish Government with an option to purchase at any time during its life. The guarantee was based on an estimate of 50% of the gross earnings being allowed for working expenses. This guarantee was paid by the Spanish Government up to 1897, when the sovereignty of the country passed into the hands of the American Government. An attempt was made on the part of the company to secure from the American Government the latter's assumption of Spain's obligations under the terms of the concession. Besides this a claim was filed in the sum of $1,500,000 for damages to the road during the insurrection against American authority. These claims were withdrawn in 1906 under an arrangement with the Secretary of War by which concessions for the construction and operations of 428 additional miles of line were granted the company.

In 1903, however, previous to the new railway program of the Philippine Government, the Commission granted the company premission to construct three extensions. One of these connects the military post at Camp Stotsenburg; the second Bigaa and Cabanatuan, and the third provided for a line connecting Manila and Antipolo. These concessions aggregated 87 miles of line.

The original capital of the company was $1,000,000 gold ordinary and $1,500,000 preferred with borrowing powers to the amount of $7,575,000. In 1904, Messrs. Speyers & Co. of New York secured a controlling interest in the company and later the company was reorganized in the United States under the same name. It was about this time that the Philippine Government was busy preparing extensive plans for opening up the islands to communication by rail, and it was with the Speyer Company that negotiations were carried on that resulted in the extension of the Manila Railway system to its present size.

Bids were advertised for the construction and operation of an aggregate of 1,200 miles of line and included in the original scheme about eleven different routes. The Philippine Government had in the meantime made provision for the guarantee of 4% on all capital invested for a period of 30 years, the interest not to exceed $1,200,000 per annum.

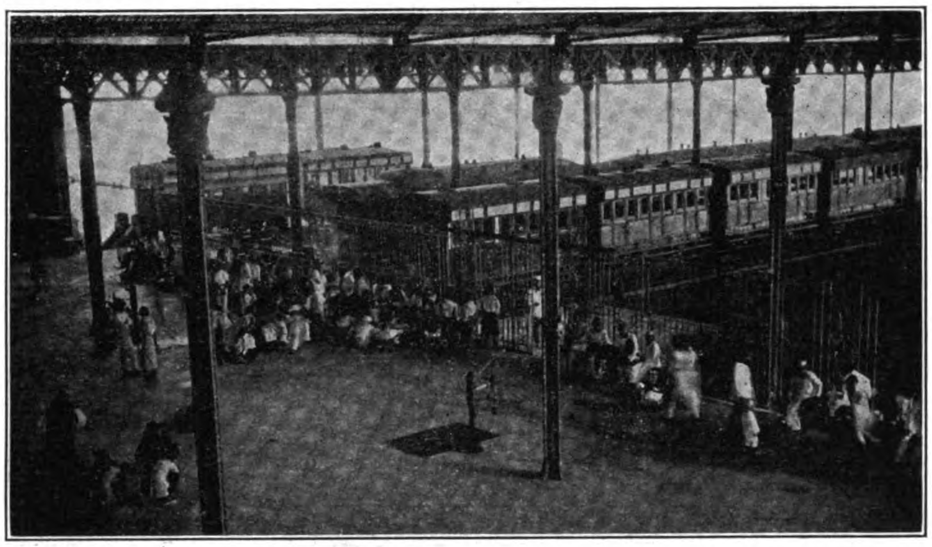
The bids were opened in December 1905 at Washington in the presence of the Secretary of War and Governor-General Wright. They comprised a bid for the lines in Luzon by Messrs. Speyer and Co., New York; a bid for the lines in Cebu, Panay and Negros by the Philippine Railway Co., and a third for the lines in Southern Luzon by a Seattle Syndicate. The Speyer Syndicate did not ask for a guarantee, but required in their bid that they be accorded low taxation, high rates without regulation by Government and permanent immunity from competition. These demands were considered excessive and together with the fact that the Seattle Syndicate had failed to deposit a cheque as guarantee, bids were re-advertised for and opened January, 1906.

The Speyers here presented two propositions, one for unguaranteed lines covering a length of approximately 400 miles and including an extension of the Manila-Dagupan to Laoag, and guaranteed line of 160 miles. There were some features of the conditions required to which the Government objected, but after a few months negotiations between the syndicate and the War Department, an amicable understanding reached whereby the guaranteed line from Dagupan to Laoag was abandoned and all the lines in Luzon were undertaken without guarantee. The following resolution adopted by the Philippine Commission presents the original agreement with Messrs. Speyers & Co., under which the Manila Railway Company undertook the construction of the lines in Luzon:

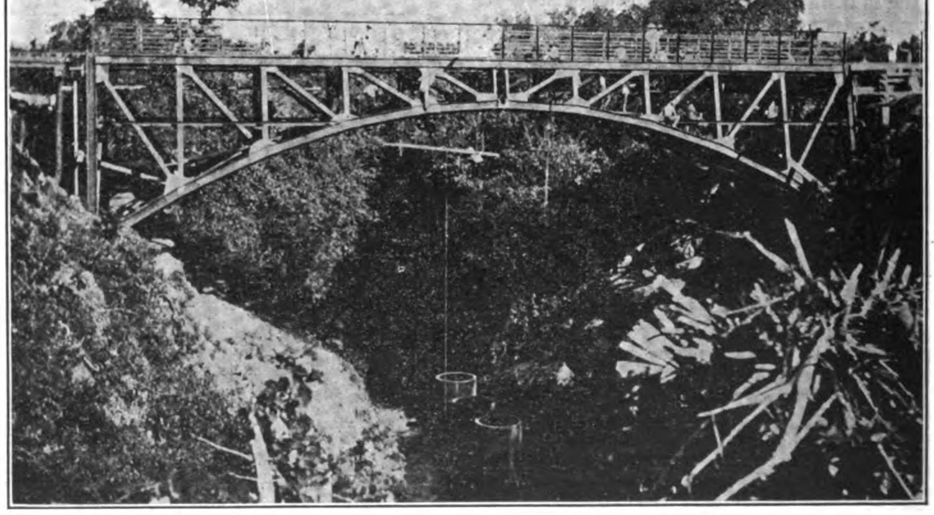
"Whereas, the Secretary of War and Vice-Governor Smith have reached an agreement with Messrs. Speyer & Co. upon the terms of a concession for the construction of 428 miles, more or less, of railroad in the Island of Luzon, the construction and equipment of which they agree to undertake and,

"Whereas, said agreement contained also a provision by which all the railroad lines of the Manila Railway Company, Ltd., whether built under the old Spanish grant or under concessions of the Philippine Commission, will be transferred to the new company organized under the laws of the United States and will be merged with the new system; and,

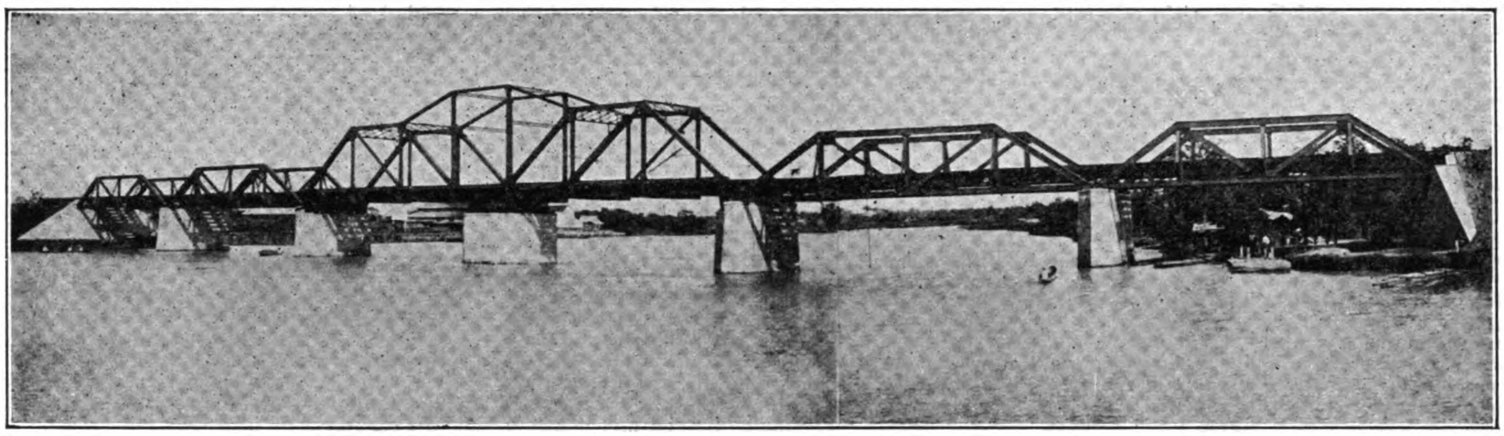
"Whereas, said agreement further provides that all claims of the existing railroad against insular, provincial or municipal governments in the Philippine Islands and the United States Government will be waived, and the original Spanish grant and concessions by the Philippine Commission for existing railroads will be ter-



VIEW OF PASSENGER DEPOT AT MANILA, TERMINAL OF MAIN LINE MANILA RAILWAY CO.



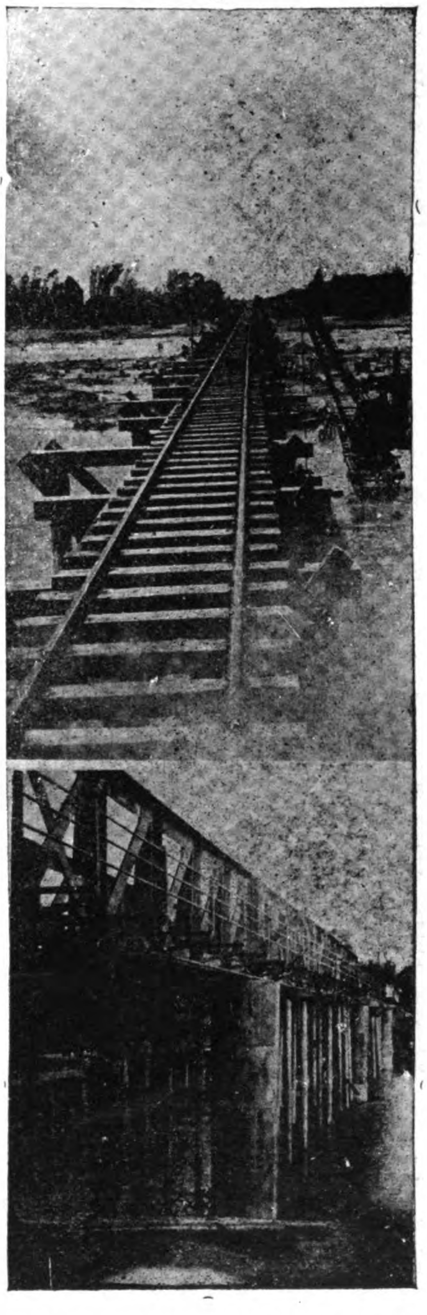
BRIDGE AT SAN JUAN RIVER ON MANILA RAILWAY CO.'S LINES. RAIL LEVEL TO BOTTOM OF CANYON 60 FEET. 30-METER ARCH SPAN



VIEW OF THE MANILA RAILWAY CO.'S DOUBLE TRACK R. R. BRIDGE ACROSS THE PASIG. ERECTED AND FABRICATED IN THE STRUCTURAL STEEL SHOPS OF THE ATLANTIC, GULF AND PACIFIC COMPANY

minated and merged in the new concession; and,

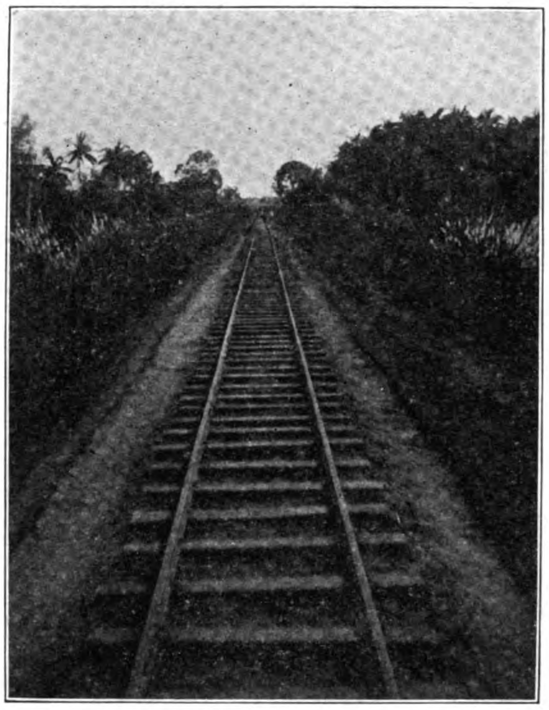
"Whereas, it appears to the Commission that it is in the public interest that railroads be constructed in Luzon at the earliest possible



MANILA RAILWAY CO.—BRIDGE ON ANTIPOLO LINE

date and that the lines bid for are, on the whole, satisfactory and the terms proposed are such that the public interests will be properly protected if the same be accepted and approved;

"Now, therefore, be it resolved, That the



VIEW OF MAIN LINE CONSTRUCTION, MANILA RAILWAY COMPANY

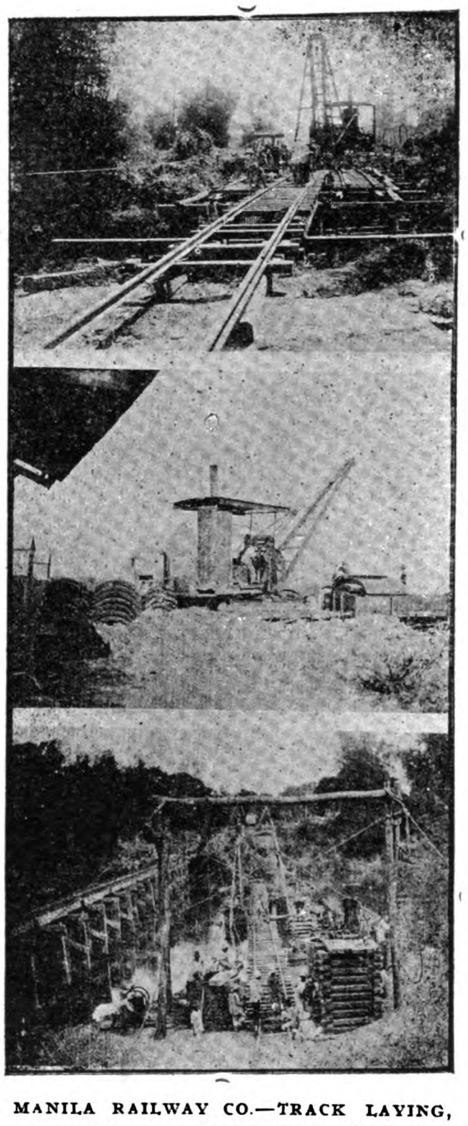
Commission hereby agrees to award to Messrs. Speyer & Co. of New York, a concession, the terms of which are to be the terms contained in a draft of a proposed act, copy of which is hereto attached, which provides for the construction and equipment of 428 miles, more or less, of railway in the island of Luzon along the routes indicated in the attached draft and upon terms therein set forth; and,

"Be it further resolved, That in order that no time may be lost by the said company in making their arrangements to begin surveys and other plans for early construction, the Secretary of War is hereby authorized to give formal notice of such agreement to award; and,

"Be it resolved further, That the Secretary of War be notified that, upon receipt of the name of the proposed company for which the concession is requested, the Commission will pass an act in accordance with the terms of the accompanying draft, copy of which he now has at Washington."

The concession was thus granted under most favorable auspices. Among the most important features of the contract were the following:

The company agreed to build 428 miles in the Island of Luzon, of which 100 miles would be in Albay and the Camarines with a line from Manila southward to Batangas and Lucena connecting therewith, together with a number



MANILA RAILWAY CO.—TRACK LAYING, CONSTRUCTION TRAIN BUILDING CONCRETE PIER FOUNDATIONS

of branches of the Manila-Dagupan including an extension to San Fernando de Union and the Benguet Road.

No guarantee of interest was included, and the rates of the Manila Dagupan prevailed the Government reserving the right to regulate them. The concession was made perpetual,

the Government retaining the right to grant franchises to competing lines.

The rate of taxation of railroad property was fixed at one-half of one per cent of the gross earnings per annum for thirty years; one and one-half per cent per annum for the ensuing 50 years, after which it shall be fixed by the Government.

The surveys were to be completed in June, 1907, and the company was given to June, 1909, to complete the first 150 miles and 75 miles additional each year thereafter. Materials for construction were admitted free of duty.

The gauge, as in all the railroads in the islands, was fixed at three feet six inches and first rate construction and practice to be provided.

By Act of the Philippine Legislature on May 19, 1909, a further contract was entered into by the Philippine Government with the Manila Railway Company, whereby the latter is to construct approximately 150 miles additional, upon which interest on bonds is guaranteed. More detailed information is given in the report of the Supervising Railway Expert included in this article. The construction of these lines, up to the present time, has been continuous up until last year and has again been renewed. Mr. Horace L. Higgins, General Manager of the company, has been in charge and to his knowledge of local conditions gained by years of experience at the head of the fortunes of the Manila Railway Company in the Philippines, is due the rapid progress made in carrying out the plans of the company.

Manila Railway Construction.—An estimate of cost on construction of these lines has been made, but no definite figures are available. On the Cavite line the cost, not including equipment or administration charges, is estimated approximately ₱30,000 per kilometer. The construction on the Batangas line is placed at about the same figures with additional for the expensive work in bridging the Pasig from Santa Mesa. The average embankment on all the Manila Company's lines is about four meters wide. The ties are 6′ 6″ long and Australian wood is used. The bridges are mostly temporary pile bridges on the new construction to be replaced on renewal by concrete and steel. The stations are built of wood and concrete with a view to the introduction later with reinforced construction throughout. Indeed, the first cost of the construction of the new lines has been very low, the management proceeding on the plan of using temporary standards for initial operation with a view to a steady renewal on a more permanent basis as required.

Until recently the labor used was secured under contract and the results showed a cost of 30 centavos a cubic meter for embankment This is simply the contract price and does not include administration or the supply of tools by the company.

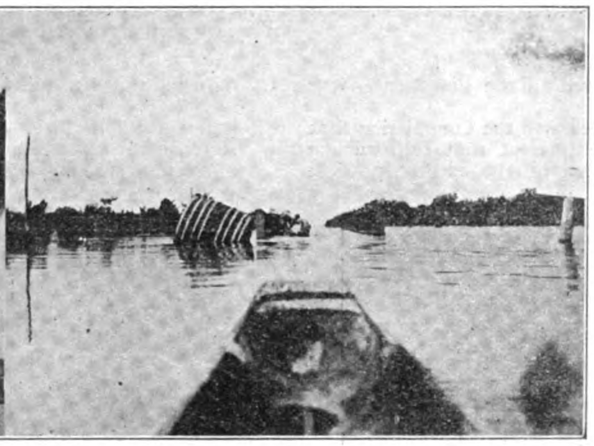
Up to the first of the year the extension from Dagupan to San Fernando de Union was open for 47.7 kilometers north of Dagupan and 62.2 kilometers were completed on the Batangas line to Tanauan.

The local officers of the Manila Railway Company are: President and General Manager Horace L. Higgins, Esq.; Chief Engineer, F. S. Snowden Esq.; Traffic Manager, Fred. C. Wright Esq.; Accountant, J. H. Allen Esq.; A. W. Bennett Esq., Secretary to the President.

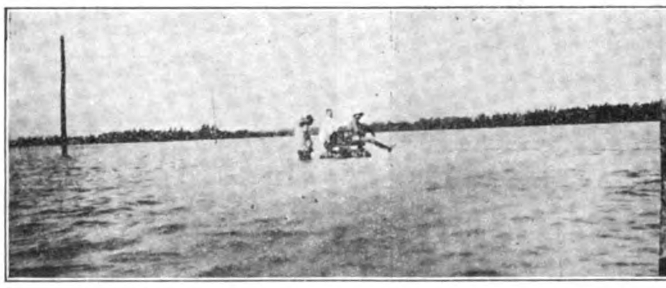
Directors' Report.—At the second annual meeting of the Manila Railway Company held recently in London for the year 1908, the following information with regard to the status of the company and its prospects may be gathered from the address of the Chairman, Mr. C. J Carter Scott:

"You may remember that in May last we had to hold special meetings of debenture and share holders to consider a new scheme necessitated by the desire of the Philippine Commission that we should undertake further railway construction in the Philippines, and that involved practically separating the whole of our railway system there into two parts—the North-

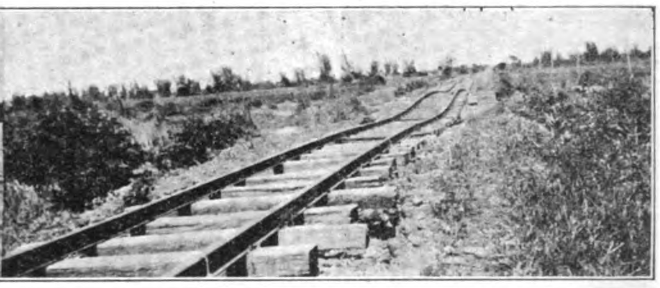
WASHOUT ON CAMP ONE BRANCH



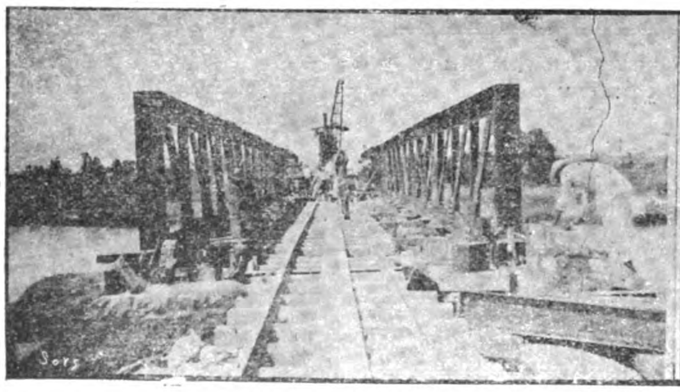
ANOTHER VIEW OF RESULT OF WASHOUT ON MAIN LINE NEAR MANGALDAN



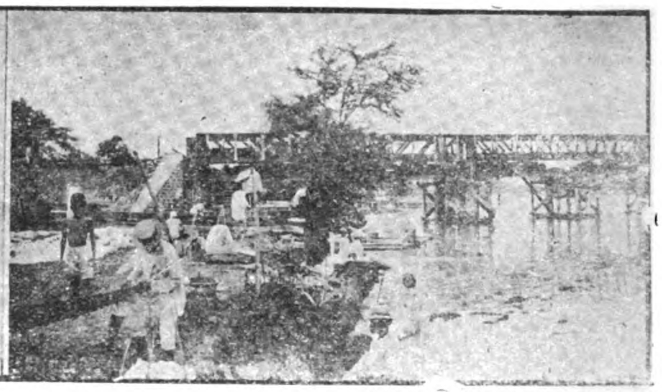
WASHOUT BETWEEN DAGUPAN AND MANGALDAN ON THE MAIN LINE



RESULT OF BAGUIO ON THE CABANATUAN LINE ABOVE MANICLING

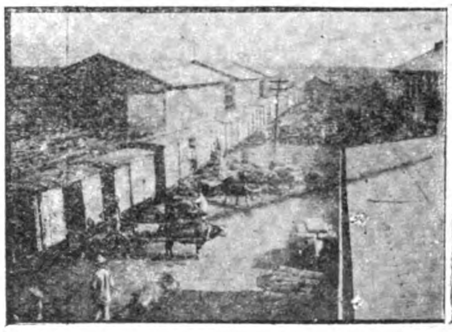
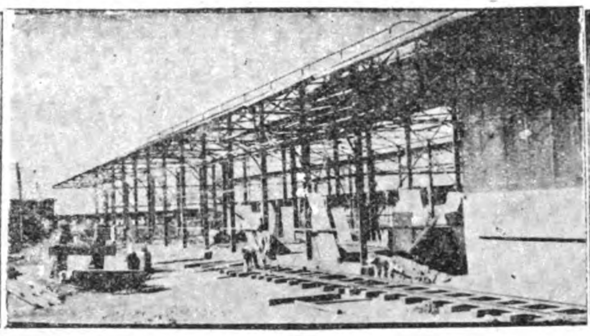
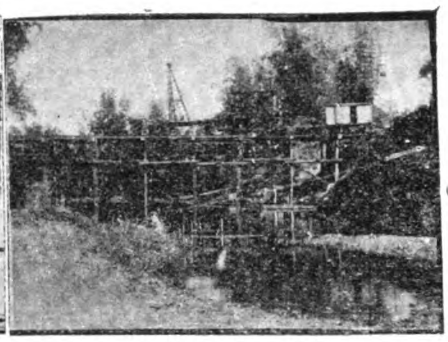


MANILA RAILWAY CO.—BRIDGE ON CABANATUAN EXTENSION



STEEL BRIDGE OVER MARIQUINA RIVER ANTIPOLO EXTENSION

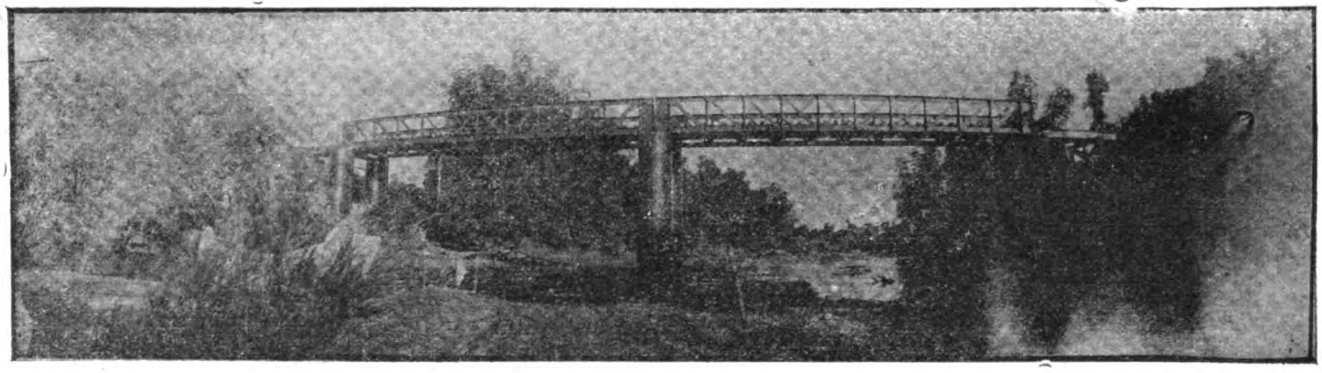
ern unguaranteed and the Southern guaranteed. At that time you approved the arrangements. I think very rightly, because I consider they were excellent arrangements for us. I then also went very fully into the question of the future of the railway—I tried to enlighten you, to the best of my ability—so that I think to-day it is useless for me to go over a great deal of the ground which I covered then. That the work is being economically carried on I think is self-evident, because you can see that the ratio of expenses in Manila is 42.15 per cent., which is very low. It is true that the figure is rather higher than in the previous year, because in 1908 we had a rather serious failure in the rice crop, which necessitated a considerable shrinkage in our revenue; but, all the same, the ratio of working expenses for 1908 is below the average of the previous ten years, and I think it will compare favourably with that of any other railway that I know of. At the same time I can assure you that the property is being well net earnings of a year when we had a serious shrinkage in our rice crop, and, naturally, with that a serious diminution in our receipts. What that diminution on rice in our receipts was you can gather, because in 1908 we carried 77,198 tons of rice, against 137,519 in the previous year, or 60,000 tons less, whilst our total goods carried amounted to 175,307 tons, against 229,556, or 54,000 tons less; so that you will see that the falling off in the revenue was entirely attributable to the shrinkage in the rice crop. At the same time we had an increase in our passenger traffic which was satisfactory. It is a little difficult in this period of construction, when we are day by day bringing fresh lines into operation, to make any comparison, but the figures I am giving you now and the figures I propose to give you are the figures of the old main line. The old main line is the only part of the system where we have any thing that we can compare with previous years, as you will quite understand. The result of to notice is that in this estimate of £135,000, practically it is all earnings from the old roads—the 210 miles. You will thus see that you have scarcely begun to reap any benefit from the 150 miles which we are now operating, and which Mr. Higgins and all who know the position out there believe will eventually be equally good with the 210 miles. There you have £135,000 against your debenture interest of £144,000, but, in addition to that, of A and B bonds, invested in the construction of the Southern lines before the new arrangement was made with the Philippine Commission. That money has to come back to the Northern lines, and until it comes back I believe we are entitled to 4 per cent. interest on it; so that, in addition to the £135,000, you have some £20,000 of interest to come back, making a total of £155,000 available against interest on your debentures of £144,000. I think, therefore, you may take it that for this year, without charging any interest to capital, which I believe it would be quite

MANILA RAILWAY CO.—TEMPORARY BRIDGE. NEW STEEL FREIGHT SHEDS, MANILA

maintained, Mr. Allan, the acting-superintendent in Mr. Higgins's absence, stating so in his report, and I know perfectly well that Mr. Higgins is the very last man to allow any property over which he has control to go downhill. The amount which we had to receive from the Manila Railway Company of New York—we being the holding company—for interest on the debentures and bonds held by us was £125,190; but as the actual earnings of the railway company were only £116,916, we have not taken credit for the larger amount, but only for the amount representing the actual earnings, leaving the amount of £8,274 as due to us by the American company. Then from that amount of net revenue which the American the working was that the total receipts of the main line were $1,500,408, which was $151,237 less than in the previous year, and we worked, as I said just now, at 42.25 per cent., as against 41.12 in the previous year. In the balance-sheet the only item I want to draw your attention to is the considerable increase in the amount of our holdings in the Manila Railroad Company. That increase amounts to £1,235,000, and represents money invested in the construction of the new works—money which we found here and for which the American company has paid us in its bonds and stock. That is the only material change in the balance sheet.

"But now I venture to think that, perhaps, what will interest you more is that I should en- in our power to do, we shall be able to meet the interest on our debenture bonds entirely out of revenue, and have a reasonable margin to be carried forward. It is almost unnecessary for me to tell you this—that the earnings from these 360 miles, and some more miles on the Northern lines which are not yet completed, will not be all that you, the shareholders, and the prior lien bondholders, will have to look forward to. By the arrangement with the American Government, the Southern lines will pay the Northern lines for the use of the Manila terminus, and the Manila shops, all of which are essential to the Southern lines, so that the income of the Northern lines will be considerably swollen by that; and I may say now that, look-



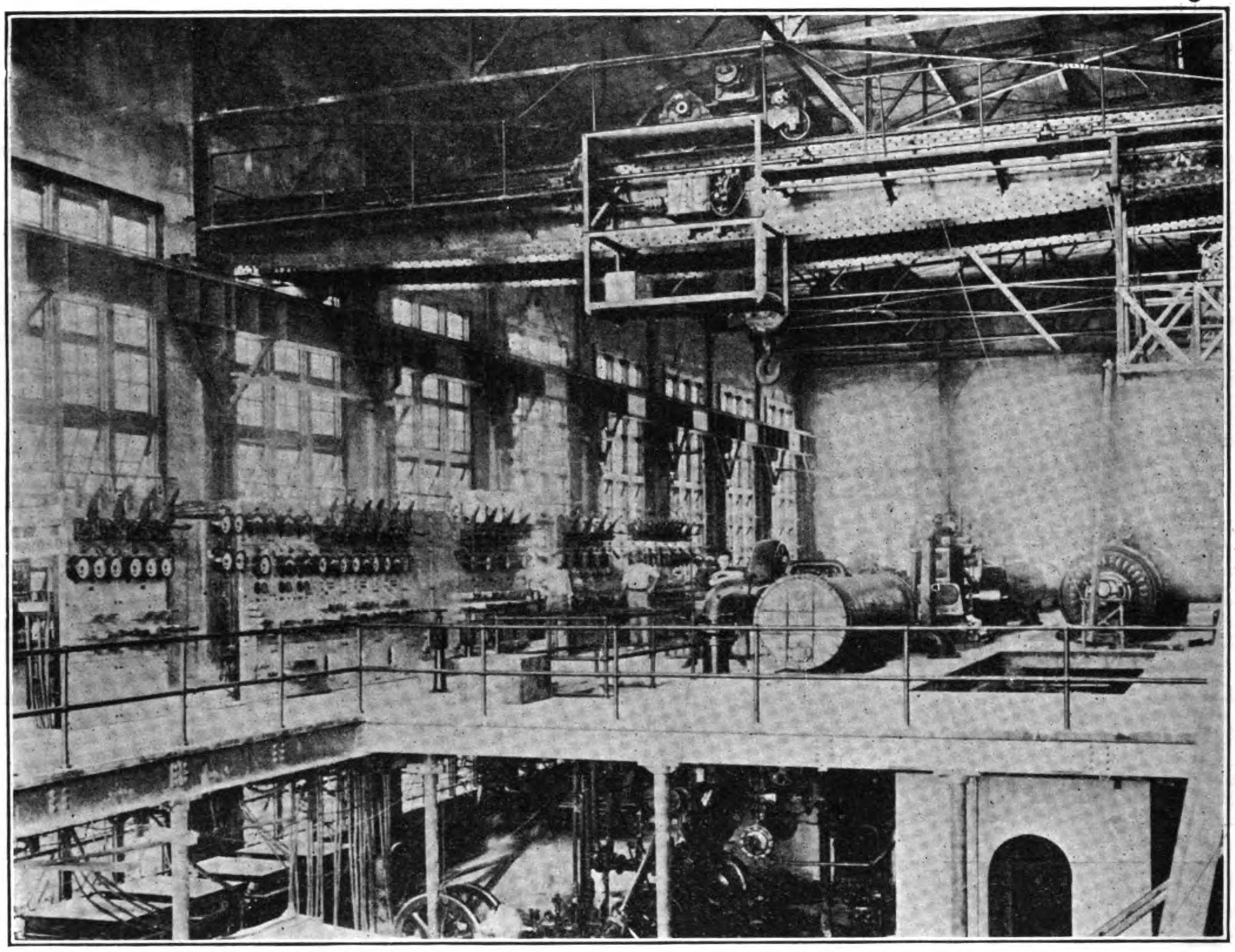
MANILA RAILWAY CO.—NEW STEEL BRIDGE WITH CONCRETE PILE

company received we have to deduct the London charges, and we find ourselves in possession of a net revenue of £112,215, which, added to the £19,078 brought forward from previous years, makes a total available balance of £131,293. On the other side of the account you will find that the amount of interest paid and accrued on our "A" and "B" debenture bonds amount to £140,866, of which, according to the plan of reconstruction, £47,666 was chargeable to capital account, leaving a balance of £93,200 chargeable against revenue, and after paying that there remains a balance carried forward of £38,093. We are dealing with figures which, you must remember, as I said just now, are the deavour to give you some forecast as to what the year 1909 will show and from that you will be able, probably, to gather what the future of the railway is likely to be. For this purpose I have got out certain estimates. I calculate that the amount required for interest on debentures during 1909 will be £143,950. Then on the 360 miles of railway which we have been operating during the year 1909 I estimate that the net earnings will be £135,000. That 360 miles includes 210 miles of what I may call the old roads, and they are estimated to produce £122,000, which works out at about £580 per mile net. The other 150 miles have only produced £13,000, and what I want you especially ing at the position of the company as I see it day by day developing, the business growing, and the good prospects of crops this year, I am more and more satisfied as to the future. You will understand that for one like myself, who has been associated with the Manila Railway Company from the very first day, and had to bear quite his fair share of the anxieties and troubles which we have had in the past, it is a source of very great congratulation that I can say I believe that now we can all see daylight.

"As to extra construction during this year, while they had had all these arrangements going on with the Philippine Commission practically all construction work was shut down.

THE MANILA ELECTRIC RAILROAD & LIGHT CO.

This company which operates a modern system of electric trams in Manila was organized under the laws of the State of New Jersey under the name of the Manila Railway & Light Company, but in July, 1903, the name was changed to the Manila Electric Railroad and Light Company. The original promoters of this enterprise were Messrs. Frank H. Buhl and Peter Kimberly of Sharon, Pa., Messrs. J. G. White & Co., Inc., Mr. Chas. M. Swift of Detroit, Mich., and the Westinghouse Electric and Manufacturing Company of Pittsburg. This company took over the electric lighting franchise of La Electricista, the Spanish company of Manila, and secured a franchise of the installation of a system of electric railways in the city taking over the old franchise of the horse car company known as the Tranvias de Filipinas



ENGINE ROOM OF THE MANILA ELECTRIC R. R. & LIGHT CO., SHOWING STEAM TURBINES AND ELECTRICAL SWITCHBOARD

The contract was let to Messrs. J. G. White & Company and work began in December 1903. Filipino labor was employed successfully and in April, 1905, the line was opened for traffic and during the year about 35 miles were included in the city system.

Power House.—A site was secured on an island in the Pasig River and a building of steel and concrete erected 170 feet × 105 feet with a height of 50 feet. The foundations were laid on 35 foot native hardwood piles. The boiler room and the engineroom have a basement 12 feet in height through which the intake and outlet tunnels 3 feet × 11 feet for the condensors are carried. The stack is 181 feet in height above a six foot pedestal on foundations made by excavations to a depth of 21 feet. It is 11 feet in diameter and lined with brick throughout.

The equipment comprises four batteries of Babcock & Wilcox boilers, each battery representing two boilers, each of 4,000 square feet of heating surface. Two outside compound packed plunger feed pumps manufactured by the Blake Pump Works are installed. Auxiliary steam exhausts in two Goubert heaters, heat the feed water and the exhaust is made into the condensor outlet tunnel. The boilers were tested to 400 pounds and operate at 200 pounds pressure.

The engine room contains two 750 kw. Westinghouse turbo-generators and an additional 1500 kw. turbo-generator of the same class. The Alberger dry vacuum apparatus is used to take care of the exhaust, with air pumps in duplicate, one of which is capable of carrying the entire load. Two centrifugal 14 inch pumps operated by Westinghouse Standard Engines provide the circulating water taken from the intake tunnel. Blake duplex pumps force the condensed steam into a hot well from which it is taken by feed pumps.

The turbo-generators are of the 3-phase, 360 volt type, making 1800 r. p. m., Two steam exciting outfits of 50 k.w. capacity and one motor driven exciter of the same capacity are installed. The switch board has thirty-two panels equipped with Westinghouse safety devices. The 360 volt alternating current is converted to direct current by three 500 k. w. and one 300 k. w. rotary transformer for power for the

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Mr. Higgins was over here for a very long time carrying on these negotiations, and until they knew what sort of bonds they had to sell, they practically could not raise any money; but he (the Chairman) hoped that before very long they would make a fresh start and push on construction. They had a lot of work done, and preparations made. He might say that there was no fear, by the delay, of their coming into conflict with the Philippine Commission or the American Government, and being told that they had not complied with the concession.

"Mr. Bruce Gardyne said he understood that only 20 miles of new road were constructed during 1908, and it had been in his mind to ask whether the board, with their knowledge, were satisfied with the progress made, having in view the period of time over which the construction had been extended.

"Mr. Gamble proposed a vote of thanks to the chairman and directors for their valuable services during the past year. The Rev. Palmer Grenville seconded the vote, and Mr. Higgins, together with the secretary and staff, having been included therein at the suggestion of Mr. Bruce Gardyne, it was unanimously accorded.

railway and the one of 500 k.w. is supplied with a 250 k.w. booster. For lighting and outside power the voltage is increased from 360 k.w. to 3,300 volts and distributed on the two phase system. A Niles 30-ton electric travelling crane is installed.

An addition was made to the generating plant in 1908 consisting of one 2,000 kw. Westinghouse turbo-generators and two batteries of Babcock & Wilson Boilers with accessories. For the purpose of this additional installation the power house was extended 30 feet.

Railway Shops. This building covers an area of 220 feet ×35 feet and includes a blacksmith shop equipped with a 15 h. p. Westinghouse motor, bolt cutting machine, a belt trip hammer and three forges; a machine shop equipped with a 23 h. p. motor, wheel boring machine, Schaefer wheel press, three Fifield lathes, two Cincinnati upright drills, one shaper, three tool grinders, one Universal Shaper, one planer and one power hacksaw; armature and winding room thoroughly equipped with all the most modern machinery for this work and besides a carpenter shop and paint shop. These shops have an overhead trolley and drop pits for separating the parts of the car and its equipment with expedition.

The Car Storage and Offices.—This building is 165 feet square constructed of steel and concrete. The first storey is used for shelter for the cars and headquarters for transportation. All cars start from this building in the morning and are stored here during the night. Between the tracks are drop pits where repairs may be made. There are also the employees' lobby, supply department, and receivers' office on this floor. On the second floor are the administration offices, 25 in all. The barn has a capacity of 50 cars. In the rear of this building is the big store room of the company and a separate place for the storing of lubricating oils, etc.

Operation—The total length of line in operation is approximately 63 kilometers, of which 39.8 kilometers comprise the main lines. The automatic block signal system is used which prevents the possibility of collisions on streets provided with only a single track. Native conductors and motor men are employed and have been found most satisfactory. Indeed, in the entire company's operations the native is utilized under white supervision most successfully.

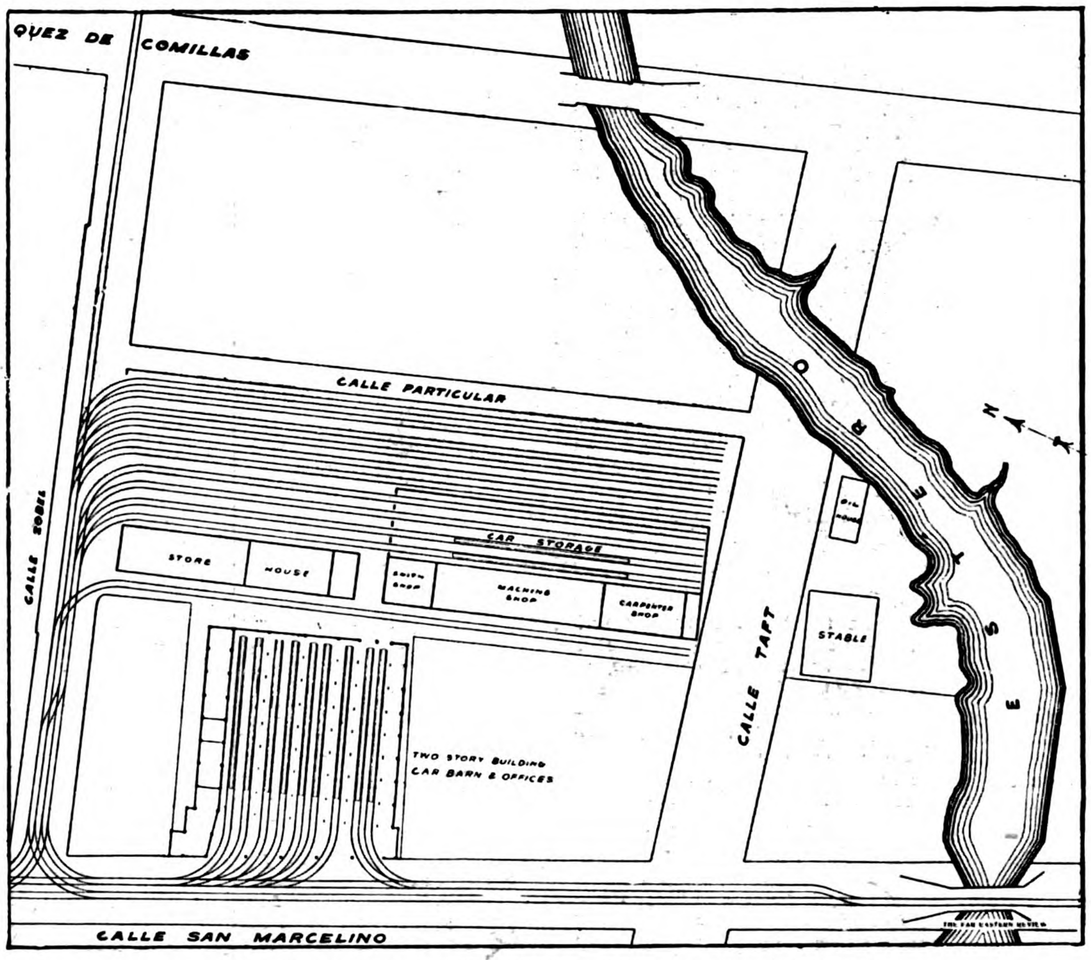
It might be said that the installation of this system of electric trams is of the most permanent character. The track is standard gauge and is laid throughout in concrete ballast. Much difficulty was encountered in installing the overhead work on account of the narrow streets. In many sections it was impossible to make the character of this work uniform. Center pole construction on wide streets was changed to the substitution of brackets on the narrower thoroughfares.

Rolling Stock.—There are 105 motor cars, of which number 55 were erected in Manila. The bodies of steel frame and teak were imported from Belgium, the axles and steel tired wheels from England and the electrical equipment from the United States. Each of these cars is equipped with a 40 h. p. motor and carries 50 passengers. The balance of the rolling stock consists of six double truck, 12-bench open cars, four double-truck combination open and boxed, fifteen double truck full convertible and 15 double truck semi-convertible and the balance miscellaneous. Among the manufacturers supplying these cars are the Preston Works, Brill and Stevenson. The climate is very severe on rolling stock and the upkeep demands a great deal of attention.

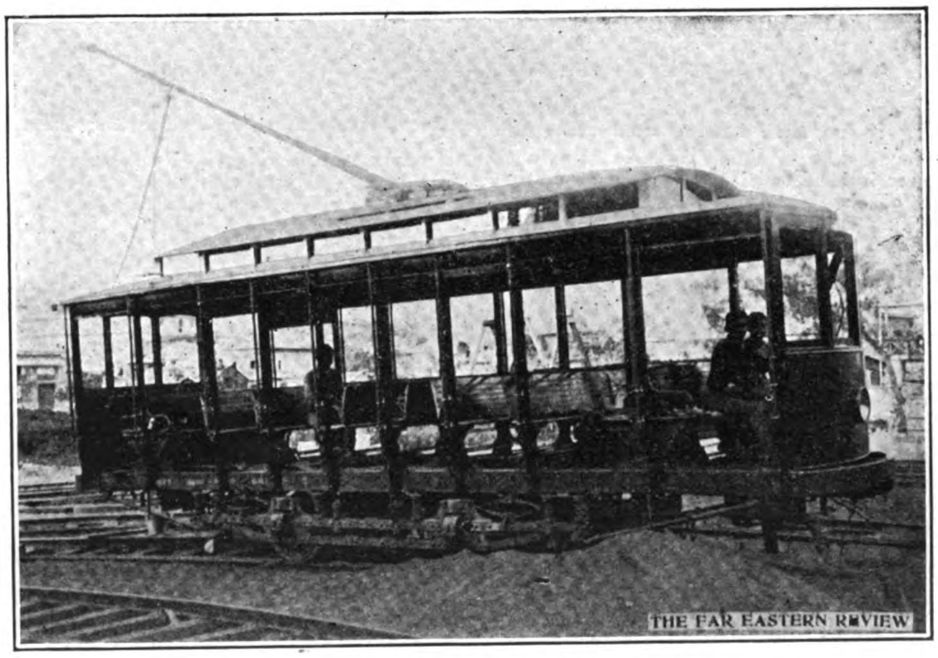
The local officials of the Manila Electric Railroad & Light Company are: Mr. C. B. Graves, 2nd Vice-President and General Manager; Mr. C. L. Stone, Assistant General Manager; Mr. J. Beckett Russell, Auditor, Assistant Secretary and Assistant Treasurer; Mr. Percy Farrant, Assistant Auditor; and Mr. M. F. McLin, Secretary to the General Manager.

The Manila Suburban Railway Company

This company has been operating a line connecting Pasig with the Manila Electric Railway System, a distance of eight miles, since January 4th, 1908. It was first opened as far as Fort William McKinley on April 18th, 1907. It taps a fertile district with a large and growing population and with the traffic from the military post is one of the most desirable undertakings in the islands. The line was built by Messrs. J. G. White & Company, Inc., contractors. The grading quite heavy, amounting to over 62,000 cubic yards, of which one-half was rock. The maximum grade is four per cent and the minimum radius of curvature, excepting for the terminal loops, 300



GROUND PLAN OF CAR BARN AND OFFICE BUILDING SHOWING



TEN-BENCH SINGLE TRUCK OPEN CAR

THE TARLAC RAILWAY COMPANY

This line which joins Paniqui and Camiling in the province of Tarlac is approximately 12 miles in length and taps the rich valley of Camiling, giving an outlet for the large rice crop of that section. It was completed May 7th, 1907. The Manila & Dagupan Railway entered into a contract to supply and operate the rolling stock on a basis of 50 per cent. of the gross receipts. The entire line may be said to have been in operation since November, 1907, and for the first eight months ended June 30th, 1908, the gross receipts were ₱22-654, the cost of maintenance and operation ₱16,881.40 and the net profit for that period ₱5,772.40 or about 5% per annum on capital. The line cost approximately ₱172,087, and up to the time of the baguios of 1909 was in continuous operation. The extraordinary expenditure in repairs resulted in a deficit last year, but at the present writing the net profits for the current term have wiped it out.

The company was organized by local capitalists. Mr. Walter E. Olsen, of Messrs. Walter E. Olsen & Company, is the president and Lionel D. Hargis, Secretary.

The line is in good shape at the present time and the year 1910 shows every indication of a handsome credit to profit and loss account.

This line was constructed in about six months, the contract being carried out by the Manila Construction Co. under the direction of Mr. Harry G. Thurber, constructing engineer. In all there are 4,000 feet of bridging, the largest over the Tarlac River being 1,400 feet in length.

The junction at Paniqui is about 87 miles from Manila. Camiling alone furnishes 20,000 tons of produce, and since the railway has been operating new lands have been improved and farming operations extended. The average saving by this line to the farmer is about ₱2.50 per ton.

The original plan of the company was to adopt a 30-inch gauge, but this was later widened to the narrow gauge or standard of all Philippine Railways. This made it possible for the Manila & Dagupan line to use its rolling stock on the Tarlac line as per contract.

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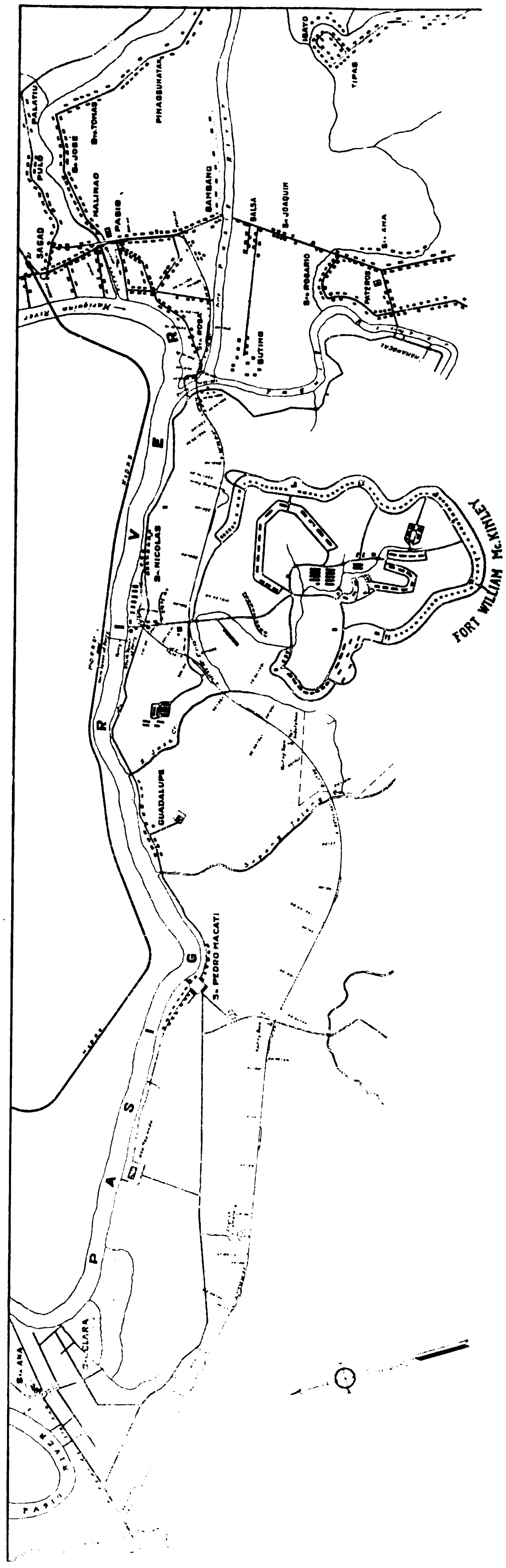
feet. One large steel bridge over the Pasig River is 430 feet in length. It consists of one channel span of 200 feet with steel trestle viaduct approaches and the main span has a minimum clearance of 16.5 feet above mean low water. Foundations are concrete carried to rock where possible and otherwise supported on piles. This bridge is sufficiently wide to accommodate the railway and public traffic. The ties used are of the best quality of Philippine hardwood and laid with eight inches of crushed stone ballasting underneath. The rails are 70 pound T section with standard split switches and No. 9 spring frogs. Block signals are installed at all the switches and telephones are located at convenient points. Comfortable waiting rooms have been erected along the route.

Power is furnished by the steam generating plant of the Manila Electric Railroad and Light Company and is transmitted to a rotary substation at 3,300 volts from which it is carried to the trolley by feeders. Double 2-0 trolley is used. The poles are of ipil and set in concrete.

In addition to the passenger service this line has developed a large freight carrying business which is constantly growing. All the freight cars used are equipped with air brakes and three of them have four 75 h. p. motors each. These cars will carry a live load of about 25 tons. The passenger cars are equipped with air brakes and are headlights and have each a capacity of 36. Each car is equipped with four 40 h. p. motors. There are six passenger, three freight, and four flats in use.

It is proposed to extend the line from Pasig to Laguna de Bay and add a line of swift passenger boats to points along the shore of the lake as well as to the attractive gorge at Pagsanjan. These plans have not matured, although approved, and it is understood will be carried out this year.



FORT MCKINLEY-PASIG LINE OF THE MANILA SUBURBAN RAILWAY CO. AND EXTENSION TO THE MANILA ELECTRIC RAILWAY SYSTEM

PHILIPPINE RAILWAYS FOR 1909

The following includes excerpts from the report of Mr. L. F. Goodale, Supervising Railway Expert, to the Secretary of Commerce and Police, for the fiscal year ended June 30th, 1909, covering the progress made on the different lines in operation or under construction.

THE MANILA RAILROAD CO.

Application was made on April 2, 1909, by the Manila Railway Company for an extension of the time for filing final plans of its lines covered by Act No. 1510.

The Governor-General, by letter of April 19, 1909, granted the extension requested, i. e., from September 12, 1909, to March 10, 1910, and the extension was accepted by the Railroad Company on May 17, 1909.

By Act No. 1905 of May 19, 1909, the Philippine Legislature authorized the Governor-General to execute a contract with the Manila Railroad Company covering the construction of railroad lines on the Island of Luzon, in addition to those covered by Act No. 1510 of July 7, 1906, as follows:

"(A) A line from the present line of the "railroad to and into the port of Manila not "exceeding approximately five kilometers "(three miles) in length;

"(B) A line to Baguio from some point "authorized on the existing railroad, with the "right to use the Benguet Road in a manner "subject to the approval of the Governor-"General;

"(C) A line from some point of the exist-"ing or authorized lines in the Province of "Tayabas or La Laguna to some point of "the authorized line of the Railroad Com-"pany approved by the Governor-General."

thus adding approximately two hundred and sixty kilometers to the lines covered by Act No. 1510.

The contract also provides that, under section four of the Act of Congress approved February 6, 1905, the Philippine Government will guarantee interest at four per cent per annum on bonds which may be issued to aid in the construction of the above lines, and of the line for the Manila Railroad Company south of Santa Mesa (Manila) covered by Acts No. 1510 and 1714.

The amount of the guaranty is limited to the difference between the amount necessary to guarantee the bonds of the Philippine Railway Company, covered by Act No. 1497, and the amount now, or which will be authorized by law.

Contract provides for the joint use of the Tondo (Manila) and Caloocan Terminals by the guaranteed and unguaranteed lines, and separate books showing the cost of construction, maintenance and operation, and earnings are to be kept for each system.

By the construction of the lines covered by Act No. 1905 a through railroad line to southeastern Luzon will be secured, the benefits of the Benguet climate will be more conveniently accessible, and by the construction of the port line at Manila the development of that port will be assured.

The railroad lines covered by Act No. 1510 and its modifications by Acts No. 1714 and 1905, are by the requirements of the latter Act, to be completed on September 12, 1918.

The formalities required by Act No. 1905 on the part of the Railroad Company have not yet been completed, but it is expected that they soon will be, and that the construction of the Manila Railroad lines will proceed as satisfactorily as before the financial troubles of the past eighteen months.

Construction.—Owing to adverse financial conditions throughout the world for the past eighteen months or two years, the construction of the lines of this Company, covered by Acts No. 1510 and 1714, have been materially retarded, so that during the fiscal year but 13.1 kilometers of grading were completed, 48.4 kilometers of track laid, and 66.0 kilometers of line put in operation.

In detail, the progress made from the beginning of work under the existing concession to the end of the fiscal year under consideration is given below:

DAGUPAN-SAN FERNANDO LINE. (PORT LINE, SAN FERNANDO.)

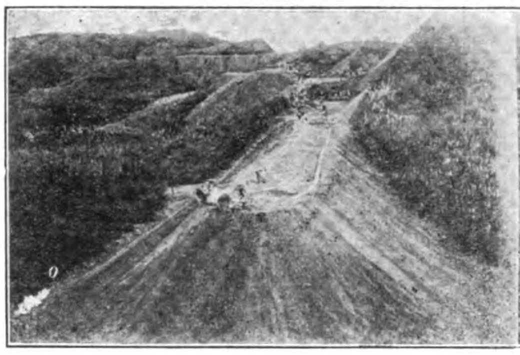
Total length of line	73.8 kilometers.
Location completed	73.8 kilometers.
Plans presented to Government for approval	73.8 kilometers.
Location approved by Governor-General	73.8 kilometers.
Grading completed	43.8 kilometers.
Track laid	41.8 kilometers.
Line opened San Fabian to Rabon July 5, 1908	10.5 kilometers.
Line opened Rabon to Santo Tomas, Nov. 14, 1908	9.9 kilometers.
Line opened Sto. Tomas to Agoo Dec. 4, 1908	4.1 kilometers.
Track yet to lay	32.0 kilometers.

CAMP ONE LINE.

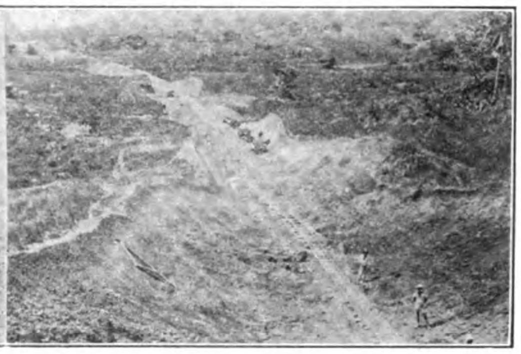
Total length of line	20.5 kilometers.
Nothing has been done on this line during the year. It was opened San Fabian to near Camp One March 23, 1908	19.4 kilometers.

PANIQUI-TAYUG LINE.

Total length of line	48.7 kilometers.
Surveys completed	48.7 kilometers.
Plans presented for approval of Government	30.0 kilometers
Location approved by Governor-General	15.0 kilometers.
Grading completed	21.4 kilometers.
Track laid	15.0 kilometers.
Nothing has been done on this line during the year. It was opened Paniqui to Cuyapo-June 30, 1908	15.0 kilometers

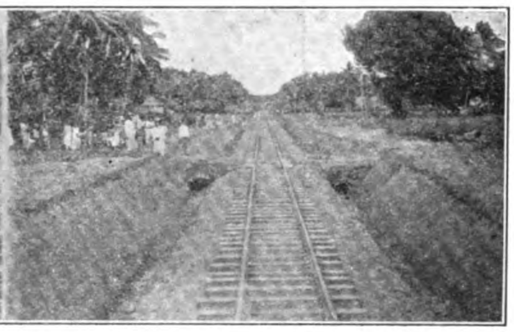


PHILIPPINE RAILWAY CO.—GENERAL VIEW SHOWING CHARACTER OF WORK IN CAPIZ PROVINCE

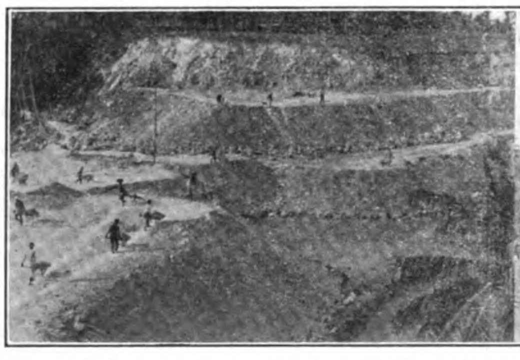


HEAVY WORK BETWEEN DUMARAO AND BUNTOG

PHILIPPINE RAILWAY CO.—NIPA SWAMP ON RIGHT OF WAY WORTH ₱1,000 A HECTAREA.—SETTLES FROM 6 TO 10 FEET



STANDARD FINISHED TRACK SOUTH OF CEBU



HEAVY FILL SOUTH OF CEBU ON PHILIPPINE RAILWAY CO.'S LINE

HEAVY WORK BETWEEN DUMARAO AND BUNTOG WHERE SPURS RUNNING OUT FROM MOUNTAINS HAVE TO BE CROSSED

SAN MIGUEL-LA PAZ LINE.

Total length of line............18.4 kilometers.
Survey completed.............18.4 kilometers.
Plans presented for approval of Government................18.4 kilometers.
Location approved by Governor-General.................... None.

This line has been examined by the Government, but approval of the plans presented is withheld at the request of the Railroad Company pending an investigation as to a revision of the location.

DAU-MAGALANG LINE.

Total length of line............ 9.0 kilometers.

This line is entirely completed and was opened December 20, 1907.

SAN FERNANDO-FLORIDA BLANCA LINE.

Total length of line............24.5 kilometers.

This line is entirely completed, the last section having been put in operation on April 10, 1908.

SAN FERNANDO-ARAYAT LINE.

Total length of line............20.0 kilometers.
Survey completed.............20.0 kilometers.
Plans presented for approval of Government................20.0 kilometers.
Location approved by Governor-General....................20.0 kilometers.

No work has been done on this line.

MARIQUINA-MONTALBAN LINE.

Total length of line............12.9 kilometers.

This line is completed, and was put in operation April 17, 1907.

ANTIPOLO LINE

Total length of line to be contructed, covered by Act No. 1510........................ 9.4 kilometers.

This line is entirely completed and was opened December 24, 1908.

BELT LINE, MANILA.

Total length of line (3.0 kilometers double track) 9.6 kilometers. Line is entirely completed and single line was put in operation in April, 1908.

MANILA-CAVITE LINE.

(Way to Binacayan.)

Total length of line............32.7 kilometers.

No work was done on this line during the year. It was opened to San Roque on May 24, 1908........................32.0 kilometers.

NAIC LINE.

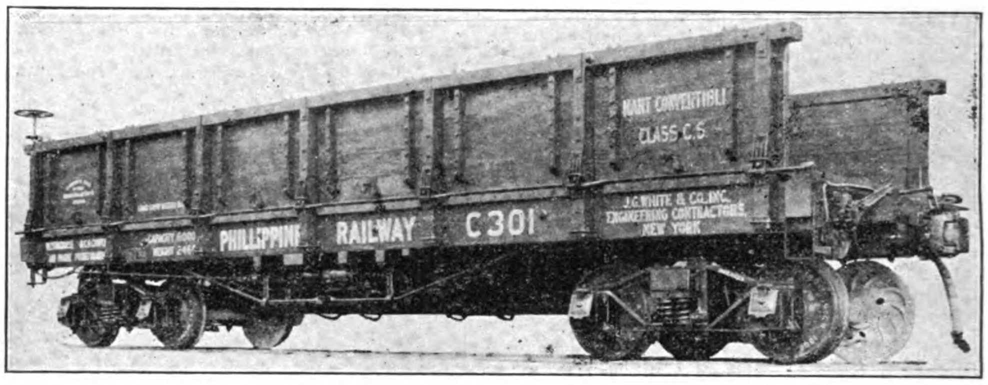
Total length of line............19.9 kilometers.
Survey completed.............19.9 kilometers.
Plans presented for approval of government................19.9 kilometers.
Location approved by the Governor-General..............19.9 kilometers.
Grading completed............12.3 kilometers.
Track laid.................... None.

CALAMBA-SANTA CRUZ-MAGDALENA LINE.

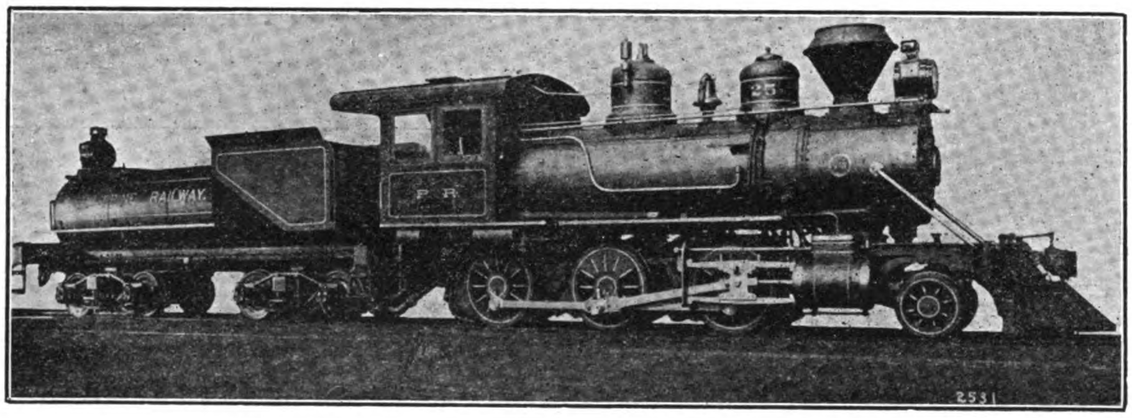
Total length of line............48.3 kilometers.
Survey completed.............19.3 kilometers.
Plans presented for approval of Government................ 9.0 kilometers.
Location approved by the Governor-General................ 9.0 kilometers.
Grading completed............ 1.7 kilometers.
Track laid..................... None.
Line opened.................. None.

SANTO TOMAS (LUTA) LUCENA LINE. (LUCENA-PAGBILAO LINE.)

Total length of line............74.5 kilometers.
Survey completed.............63.2 kilometers.
Plans presented for approval of government................63.2 kilometers.
Location approved by Governor-General....................63.2 kilometers.
Grading Completed............ 9.5 kilometers.
Track laid.................... None.
Line Opened .... None.



30-TON RODGER BALLAST CAR FOR THE PHILIPPINE RAILWAY



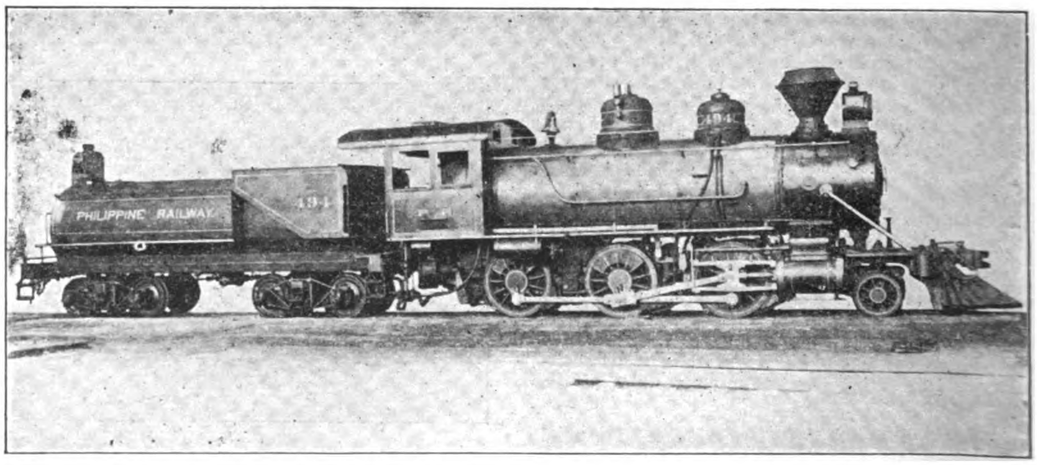
MANILA-BATANGAS LINE.

(Batangas to Bauan; Port Line, Batangas; Camp McGrath Spur.)

Total length of lines..........112.3 kilometers.
Surveys completed...........102.6 kilometers.
Plans presented for approval of the Government...........102.6 kilometers.
Location approved by Governor General...................102.6 kilometers.
Grading Completed............86.2 kilometers.
Track laid.....................57.2 kilometers.
Total line opened.............54.4 kilometers.

Line Opened

Muntinlupa to San Pedro Tunison, Aug. 1st, 1908........ 3.7 kilometers
San Pedro Tunison to Biñan, Sept. 2, 1908................ 4.0 kilometers.
Niña to Santa Rosa, October 10, 1908.................. 4.5 kilometers.
Santa Rosa to Cabuyao, Nov. 7, 1908...................... 3.5 kilometers.
Cabuyao to Calamba, Jan. 24, 1909...................... 8.8 kilometers.
Calamba to Maquiling, June 13, 1909...................... 7.6 kilometers.
Track yet to be laid...........55.2 kilometers.



TYPES OF BALDWIN LOCOMOTIVES USED BY THE PHILIPPINE RAILWAY CO.

Legaspi-Caima Bay Line.

(Legaspi to Tobaco, Legaspi Port Line, Tobaco Port Line, Ligao East, Tobaco West, Pili to Lagonoy.)

Total length of line........... 240.5 kilometers.
Survey completed............ 102.6 kilometers.
Plans presented for approval of government................ 80.9 kilometers.
Location approved by Governor-General..................... 31.0 kilometers.
Grading completed............ 16.0 kilometers.
Track laid..................... 1.0 kilometer.
Line opened.................. None.

No work of any kind has been done on the particular lines covered by Act No. 1905.

Acts Nos. 1510 required the Manila Railroad Company to have 240 kilometers of its line completed on September 12, 1909.

It will be seen that on June 30th, 1909, the company had completed 231.8 miles of track, of which 216.1 kilometers are open and in operation, leaving 8.2 kilometers to be laid before September 12th, 1909, to fulfil the conditions of Acts Nos. 1510 and 1714

Operation and Maintenance.—The results of the operation and maintenance of this line for the year ended December 31st, 1908, compared with the previous year, with various statistics, follow:

OPERATING EXPENSES. (C)

	1907	1908	Decrease	Increase.
Administration.	₱ 96,796.11	₱ 115,345.85	....	₱18,549.74
Traffic.........	237,775.81	270,741.46	....	32,965.65
Maintenance of Equipment...	369,958.20	385,625.41	....	15,667.21
Maintenance of Way & Structures........	292,464.91	240,759.53	₱52,418.38	....
Totals.....	₱996,995.03	₱1,011,759.25	....	₱14,764.22

	1907	1908	Decrease	Increase.
Total Operating Revenue......	₱2,179,532.97	₱2,152,738.28	₱26,794.69	......
Total operating Expenses......	996,995.03	1,011,759.25	......	₱14,764.22
Net Operating Revenue......	₱1,182,537.94	₱1,140,979.03	₱41,558.91	......
Taxes...........	4,726.72	15,536.91	......	₱10,810.19
Operating Income	₱1,177,811.22	₱1,125,442.12	₱52,369.10	......
Percentage of Operating Expenses to Operating Revenue.......	45.7	47.0	....	1.3

REVENUE FROM TRANSPORTATION (C)

	1907	1908	Decrease	Increase.
Freight Revenue	₱ 820,476.17	₱ 741,846.12	₱78,630.05	....
Passenger do...	1,331,245.48	1,352,029.58	......	₱20,784.10
Mail do.....	7,623.63	28,761.61	......	21,137.98
Totals.....	₱2,159,345.28	₱2,122,637.31	₱36,707.97	......

REVENUE FROM OPERATION OTHER THAN TRANSPORTATION (C)

	1907	1908	Decrease	Increase.
Station and train Privileges.....	₱ 3,599.21	In rent of buildings, etc.	₱ 3,599.12	....
Switching revenue..........	In freight.	In freight.	......	....
Storage of baggage & freight.	1,478.21	In freight.	1,478.21	....
Rent of buildings and property..	15,110.27	20,100.97	......	₱14,990.70
Totals......	₱ 20,187.69	₱ 30,100.97	......	₱ 9,913.28

LENGTH OF LINES IN OPERATION

Territory Covered	Kilometers 1907 Main Line	1907 Sidings	1907 Total	1908 Main Line	1908 Sidings	1908 Total
Main Line:						
Manila-Dagupan..	196.0	40.7	236.7	195.4(a)	41.3	236.7
Cabanatuan Branch:						
Bigaa to Cabanatuan..........	91.0	8.0	99.0	91.5(b)	8.0	99.5
Antipolo Branch:						
Manila to Antipolo	24.3			33.9	4.2	38.1
Mariquina Branch:		4.0	45.8			
Rosario to Montalban...........	17.5			17.5	1.2	18.7
Stotsenburg Branch:						
Dau to Stotsenburg..........	7.0	0.8	7.8	7.0	1.3	8.3
Dau-San Pedro-Magalang......	9.0	not given	9.0	9.0	1.2	10.2
San Fernando-Florida Blanca Branch.........	10.4	not given	10.4	24.5	2.9	27.4
Camp One Line...	....	....	....	19.5	1.5	21.0
Cavite Line......	....	....	....	32.0	3.6	35.6
San Fernando de Union Line.....	....	....	....	36.5	3.3	39.8
Pañiqui-Tayug Line..........	....	....	....	15.0	1.1	16.1
Batangas Line, including Belt....	....	....	....	41.0	4.2	45.2
Totals.........	355.2	53.5	408.7	522.8	73.8	596.6

(C) For the Main Line, Cabanatuan, Antipolo and Stotsenburg Branches only.

(a) Extension to San Fernando de Union leaves old main line at Kilometer No. 195.4; the remainder of the old main line, 0.6 kilometer, being now called a siding.
(b) Length of this line is given to the end of the track instead to center of Cabanatuan station as heretofore.

The increased length of lines operated during the year 1908 was 167.6 kilometers.

No rail was relaid on main line during the year and but little permanent bridge work was executed on operated lines. The track, except during the season of heavy rains and washouts which were unusual, was kept in excellent condition.

The result of operation was as follows:

	1907	1908	Decrease	Increase.
Passenger revenue per train kilometer.........	₱1.802	₱1.168	₱0.634	......
Freight revenue per train kilometer.........	1.736	3.087	......	₱1.351
Total revenue per train kilometer.	1.909	1.493	₱0.416	......
Operating Expenses per train kilometer........	0.877	0.712	0.165	......
Net revenue per train kilometer.	1.032	0.781	0.251	......
Passenger revenue per kilometer of line...........	3,972.91	4,113.17	......	140.26
Freight revenue per kilometer of line...........	2,434.64	2,209.85	224.79	......
Miscellaneous revenue per kilometer of line...	59.91	89.67	......	29.76
Total revenue per kilometer of line	6,467.46	6,412.69	54.77	......
Operating Expenses per kilometer of line......	2,958.34	3,013.88	......	55 54
Net revenue per kilometer of line	3,509.12	3,398.81	110.31	......
Average amount received per kilometer per passenger.........	0.0176	0.0202	......	0.0026
Average amount received for each passenger......	0.4988	0.5088	......	0.0100
Average amount received for each ton of freight per kilometer...	0.0329	0.0320	0.0027	......
Average amount received for each ton of freight...	2.4625	2.3052	0.1573	......
Average haul per passenger, kilometers.........	28.00	25.00	8.00	......
Average haul per ton of freight, kilometers.....	77.00	76.00	1.00	......
Passengers hauled one kilometer...	69,797,436	58,276,903	11,520,533	......
Tons of freight hauled one kilometer.........	24,054,286	19,253,495	4,800,791	......

THE EQUIPMENT OF THIS LINE CONSISTS OF:

	1907	1908	Decrease	Increase.
Passenger and freight engines..	58	72	......	14
First Class Passenger Cars.....	9	9	......	......
First and second class passenger cars...........	10	10	......	......
Second class Passenger Cars.....	10	10	......	......
Third Class Passenger Cars.....	77	86	......	9
Inspection Cars...	2	2	......	......
Freight Cars......	908	1046	......	138
Miscellaneous Cars..........	52	67	......	15

Accidents during the year: 38 class A, serious; 30 class B, not serious; and 93 class C, minor.

Interruptions to the operations of line on account of washouts, baguios, etc., were numerous during the year, two interruptions occurring in May, two in July, eight in August, seven in October and one in November. The baguios of October were most severe, traffic being interrupted on 28 kilometers of line on October 6th.

Note: The report of the operation of the Manila Railroad Company is for the year ended December 31st, 1908.

Philippine Railway Company

By Act No. 1889 of May 8, 1909, the Philippine Legislature amended paragraph three of subsection one of section one of Act No. 1497 to read:

"On the Island of Negros; (b) A line in "the Island of Negros, from the munici-"pality of Saravia on the northwest coast "of said Island, southerly to Cabancalan, "a distance of approximately seventy-"five miles."

This relieves the Philippine Railway Company from the construction of a railway line on the north coast of the Island of Negros from Escalante to Saravia, but extends the original concession southerly from Himamailan to Cabancalan.

The amendment as above was accepted by the Railway Company on June 8, 1909.

ISLAND OF CEBU.—*Construction.*—Although the laying of the main line track on this island was completed on May 15th, 1908, and a line put in operation in September, 1907, the construction works in other respects had not been completed on June 30th, 1909.

No attempt to start the final ballasting of the line was made until October, 1908, but at the end of the year little more remained to complete the work.

In addition to finishing the ballasting, there yet remained to complete the construction of the line, the erection of three or four short bridges, the painting of all the bridges with the final coat, the finishing of the wharf track at Cebu, the furnishing of additional equipment which has been ordered and a number of miscellaneous jobs.

Certifications for the issuance of bonds covering the construction of this line to the end of the fiscal year have been made as follows:

Date of Certification	First Bond Section 32.0 Kilometers	Second and Partial Bond Section 63.0 Kilometers	Total
Previous Fiscal Years..	$1,320,000.00	$1,091,000.00	$3,411,000
July 28, 1908..........	56,000.00	145,000.00	201,000
October 23, 1908......	2,000.00	101,000.00	103,000
December 24, 1908....	20,000.00	138,000.00	158,000
March 16, 1909........	19,000.00	39,000.00	58,000
June 16, 1909.........	26,000.00	83,000.00	109,000
Totals............	$1,443,000.00	$1,597,000.00	$3,040,000

The above values are in U. S. Currency.

So far as the issuance of bonds is concerned this line has cost, therefore, for the 95.0 kilometers constructed (59.4 miles) 64,000 pesos per kilometer or $51,178.45 per mile.

ISLAND OF PANAY.—*Location.*—The location of the railroad line on this island has been approved by the Governor-General, except for the terminal at Batan, the plans for which have not yet been presented.

Grading and Tracklaying.—The grade on June 30th, 1909, was completed from Iloilo north 69.4 kilometers (43.1 miles) and tracklaying has been completed for the same distance.

Grading was progressing satisfactorily from end of track and at various points along the line to Capiz from which point south there were 1.9 kilometers of completed grade with materials on hand for the laying of about 15.0 kilometers of track.

General.—Temporary ballasting has been completed for 67.8 kilometers (42.1 miles) Final ballasting begun in May, 1909, was completed for 8.4 kilometers (5.2 miles).

The shop buildings at Lapus (Iloilo) were completed, except the round-house and a few of the smaller buildings, with the station buildings for the 64.0 kilometers in operation nearly completed and in service.

Permanent bridge work, with the exception of a few small structures, was completed to Passi, 53.0 kilometers.

Bonds.—Certificates for the issuance of bonds on this island to the end of the fiscal year have been made as follows:

Certification	First Bond Section, 32.2 Kilometers	Second Bond Section, 32.2 Kilometers	Total
Previous Fiscal Years.	$1,359,000.00	....	$1,359,000
July 28, 1908.........	89,000.00	....	89,000
October 23, 1908......	142,000.00	....	142,000
December 24, 1908....	142,000.00	$1,073,000.00	1,073,000
March 16, 1909.......	....	35,000.00	35,000
Total............	$1,732,000.00	$1,108,000.00	$2,840,000

So that, so far as authorization of bonds is concerned, the two bond sections on this island had cost to June 30th, 1909, for the 64.4 kilometers (40.0 miles) covered, at the rate of ₱88,198.76 per kilometer, or $71,000.00 a mile. This cost of kilometer should be reduced somewhat when all the sections are completed, as the heavy expenditures for the Iloilo terminal will then be distributed over the whole line but the large amount of grading necessary to be done on the north end of the line will work against any large amount of reduction in the cost per unit of line.

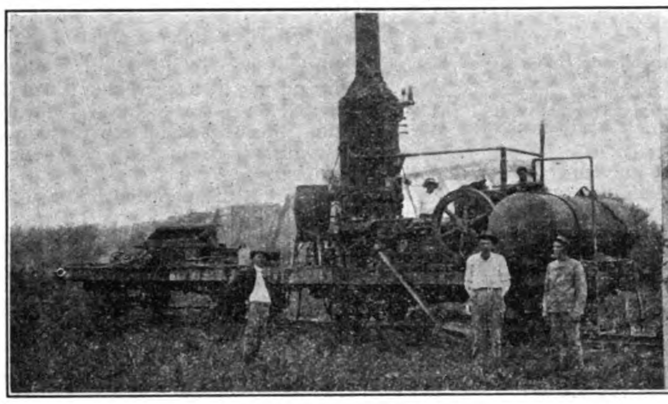
ISLANDS OF NEGROS.—No work of construction has been done on this island The Governor-General has approved the location of the line except for the terminal at Bacolod, plans for which have not been presented.

Summary.—The total amount of grading done by this company during the year was 28.5 kilometers, and the track laid during the same period was 24.0 kilometers.

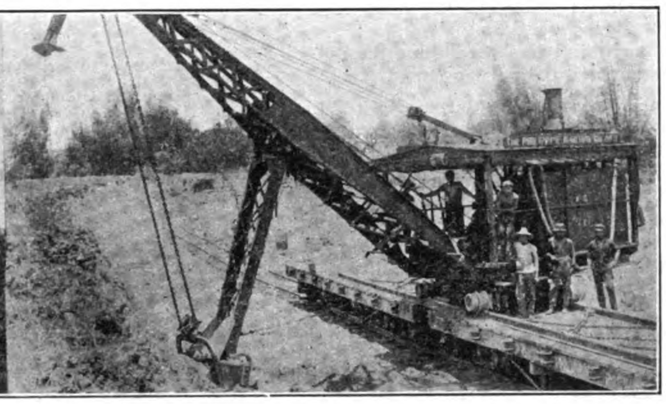
Operation.—At the end of the fiscal year this railroad company had in operation 95.0 kilometers (59.4 miles) of track on the island of Cebu and 64.4 kilometers (40.0 miles) on the island of Panay, with 5.0 kilometers (3.0 miles) of track laid but not in operation on the latter island.

During the year one section of 32.2 kilometers (20.0 miles) on the island of Panay as certified for commercial operation on March 16th, 1909.

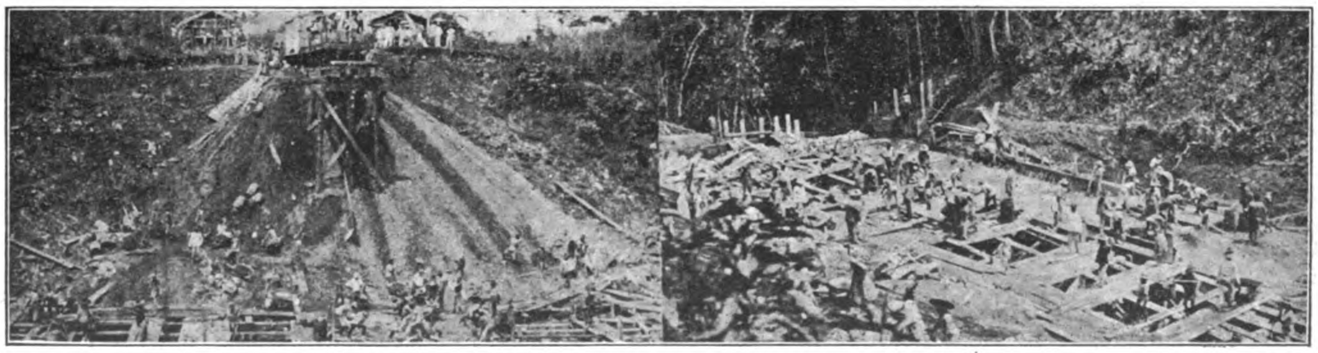
None of the lines of the Philippine Railway Company were in full commercial operation during the fiscal year, the cost of operation being charged and the earnings therefrom being credited to construction account. On July 31st, 1909, instructions were given that as of July 1st, 1909, the Philippine Railway Company line on Cebu should be considered in full operation.



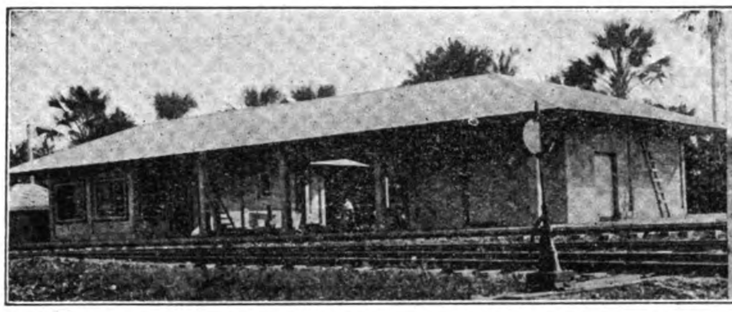
PHILIPPINE RAILWAY CO.—RIVETING OUTFIT IN USE ON CONSTRUCTION WORK



DITCHING MACHINE LOADING GRAVEL AT SANTA BARBARA FOR LAPUS YARD FILLING.—INDISPENSABLE FOR CLEARING OUT SLIDES IN CUTS

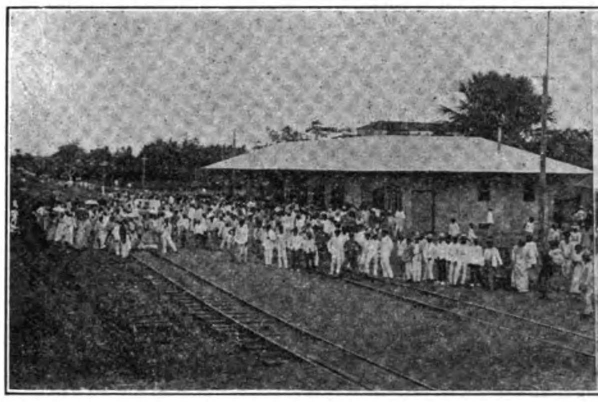


PHILIPPINE RAILWAY CO.—A DOUBLE 16-FOOT CONCRETE BOX BEING CONSTRUCTED AND PLACED UNDER 10,000 YARD FILL IN PANAY

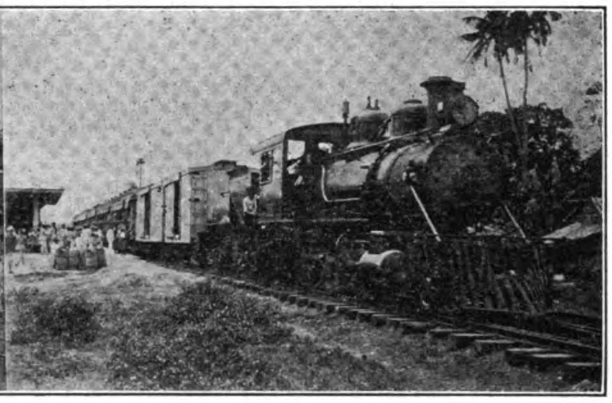


PHILIPPINE RAILWAY CO.—STANDARD SECOND CLASS STATION OF REINFORCED CONCRETE

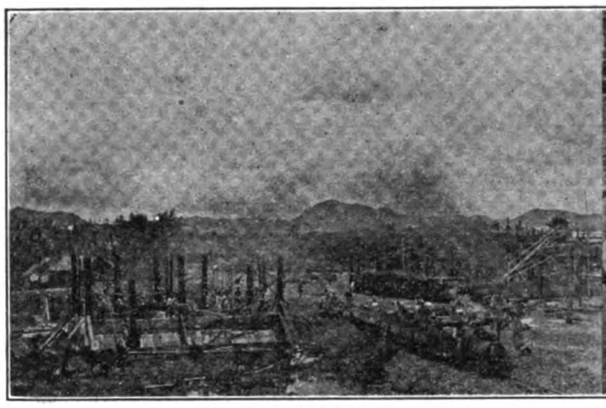
STANDARD THIRD CLASS STATION BUILT OF REINFORCED CONCRETE



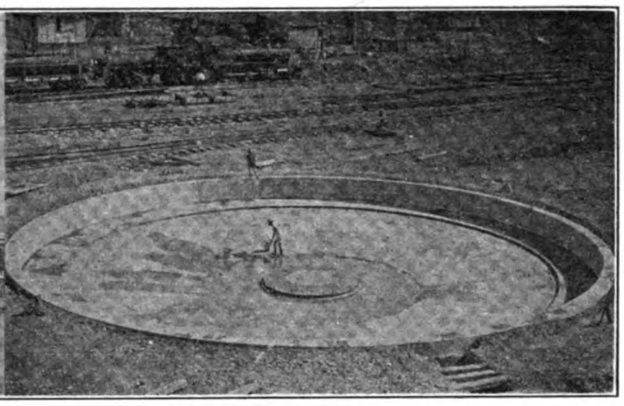
PHILIPPINE RAILWAY CO.—FIESTA CROWD WAITING FOR TRAIN AT CARCAR ON CEBU LINE



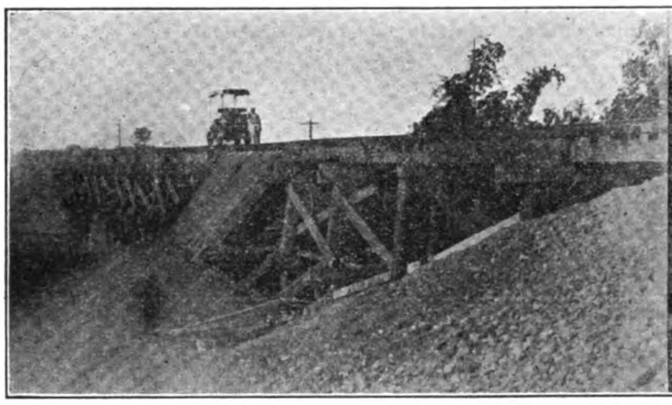
B CLASS BALDWIN LOCOMOTIVE WITH MIXED TRAIN OF 20 TONNE CARS AND 1ST AND 2ND CLASS COACH



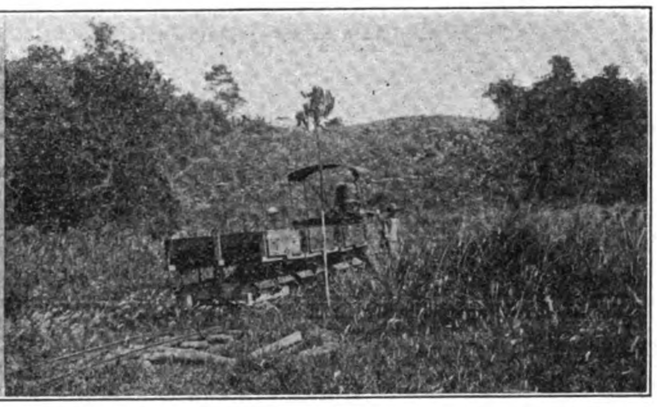
PHILIPPINE RAILWAY CO.—DETAIL OF CAPIZ TERMINAL SHOWING SITES OF STATION, WAREHOUSES, ETC.



TURNTABLE PIT CEBU YARD



PHILIPPINE RAILWAY CO.—MASONRY FOR TWO 50-FOOT SPANS NEAR LUCENA, PANAY



GRADING LOCOMOTIVE BEING DRAGGED 2.5 MILES BY MEN OVER COUNTRY TO NEW WORK.—NO ANIMALS AVAILABLE—20 CARS CARRIED SAME DISTANCE

Manila Electric Railroad and Light Company and the Manila Suburban Railway Company

Construction.—No work of construction was done on either of these lines during the year. It is probable, however, that the work of constructing the line from near Fort McKinley to Taguig on the Laguna de Bay, authorized by Act No. 1589 of February 1st, 1907, will commence during the year ending June 30th, 1910.

Operation.—The results of the operation of these lines for the fiscal years 1908 and 1909 follow:

REVENUE AND COST OF OPERATION

	F. Y. 1908	F. Y. 1909	Decrease	Increase.
Revenue from Transportation.	₱991,668.31	₱948,822.97	₱42,845.34	......
Miscellaneous Revenue.......	68,946.96	77,553.23	......	₱8,606.27
	₱1,060,615.27	₱1,026,376.20	₱34,239.07	......
Operating Expenses Maintenance of Way and Structures..	₱50,497.60	₱80,502.83	......	₱30,005.23
Maintenance of Equipment.....	90,876.17	94,810.22	......	3,934.05
Traffic and Transportation Expense..........	304,162.98	211,286,06	......	......
Genera Expense and Taxes.....	113,862.03	not given	valueless.	
Total Operating Expenses......	₱569,398.03	₱594,662.78*	......	₱25,264.00
Net Operating Revenue.......	₱491,216.49	₱431,713.42	₱59,503.07	......
Percentage of Operating Expenses to Gross Revenue...........	53.7	53.9	......	4.2

* Estimated.

	Fiscal Year 1908			
	Main Line	Second Track	Sidings	Total
Kilometrage.......	39.8	17.2	6.2	63.2

	Fiscal Year 1909			
	Main Line	Second Track	Sidings	Total
Kilometrage.......	39.8	17.2	6.2	63.2

GENERAL INFORMATION

	F. Y. 1908	F. Y. 1909	Decrease	Increase.
Total number of Paying Passengers Carried....	10,701,859	10,437,841	264,018	......
Average earnings per passenger...	0.099	0.096	0.01	......
Average expense per passenger...	0.053	0.057	......	0.004
Equipment consists of:				
Motor Cars.....	105	105	......	......
Work Cars.....	1	Not given	......	......
Wrecking Cars..	1	Not given	......	......
Water Sprinkler..	1	1	......	......

MANILA SUBURBAN RAILWAY COMPANY

LENGTH OF LINES

	Fiscal Year 1908			
	Main Line	Second Track	Sidings	Total
Kilometrage.......	9.9	....	1.7	11.6

	Fiscal Year 1909			
	Main Line	Second Track	Sidings	Total
Kilometrage.......	....	....	1.7	11.6

	F. Y. 1908	F. Y. 1909	Decrease	Increase.
Revenue from Transportation.-	₱157,228.81	₱189,212.70	......	₱31,984.19
Miscellaneous Revenue......	1,204.04	1,543.30	......	339.26
Total Operating Revenue.......	₱158,432.55	₱190,756.00	......	₱32,323.45
Operating Expenses.				
Maintenance of Way and Structures..........	₱ 600.38	₱ 8,856.36	......	₱ 8,256.08
Maintenance of Equipment.....	407.40	527.91	......	120.51
Traffic and Transportation Expense..........	59,732.72	valueless	......	......
General Expenses and Taxes.....	11,213.90	valueless	......	......
Total Operating Expenses and Taxes.........	₱ 71,954.30	₱ 95,823.99*	......	₱23,869.69
Net Operating Revenue.......	₱ 86,478.25	₱ 94,932.01	......	₱8,483.76
Percentage of Operating Expenses to Gross Revenue.......	45.5	50.2	......	4.7

* Estimated.

GENERAL INFORMATION

	F. Y. 1908	F. Y. 1909	Decrease	Increase.
Total number of Paying Passengers Carried....	₱2,087,786	₱2,702,227	......	614,441
Average Earnings per passenger...	0.075	0.070	0.005	......
Average Expense per passenger...	0.034	0,035	......	0.001
Equipment consists of:				
Motor Cars.....	6	6	......	......
Motor Freight Cars	3	3	......	......
Flat Cars.........	4	4	......	......

TARLAC RAILWAY CO.

Construction.—No construction work was done on this line during the year.

Operation.—The results of the operation of this line for the fiscal years 1908 and 1909 were as follows:

OPERATING EXPENSES

	1908	1909	Decrease	Increase.
Paid Manila R. R. Co., Traffic Expenses.........	₱11,528.99	₱12,941.96	......	₱1,412.97
Administration and Maintenance of Way and Structures.....	4,218.08	19,205.74	......	14,987.66
Totals.......	₱15,747.07	₱32,147.70	......	₱16,400.63

	1908	1909	Decrease	Increase.
Operating Revenue...........	₱23,057.98	₱25,883.92	......	₱2,825.94
Operating Expenses............	15,747.07	32,147.70	......	16,400.63
Net Operating Revenue.......	₱7,310.91	₱6,263.78(a)	₱13,574.69	......
Taxes...........	339.80	382.52	......	42.72
Operating Income	₱6,971.11	₱6,646.30(a)	₱13,617.41	......
Percentage of Operating Expenses to Operating Revenue.......	68.3	124.2	......	55.9

(a) Deficit.

This company owns no equipment. No accidents reported.

LENGTH OF LINES

	Kilometers F. Y. 1908	Kilometers F. Y. 1909	Decrease	Increase.
Panique to Camaling...........	20.58	20.58	......	......

REVENUE FROM TRANSPORTATION AND OPERATION

	1908	1909	Decrease	Increase.
Freight, passenger, Mail and Miscellaneous revenue	₱23,057.98	₱25,883.92	......	₱2,825.94

In view of the materials used in the construction of this line, it has been maintained in fair condition during the year. Numerous washouts have occurred, however, and until more permanent concrete bridge structures are erected and embankments strengthened, these washouts and interruptions to traffic will occur.

INSULAR COAL COMPANY

The Insular Coal Company having failed to accept the provisions of Act No. 1835 of May 21, 1908, in the time specified in said Act through no fault of its own, the Philippine Legislature, by Joint Resolution No. 16 of May 19, 1909, approved, ratified and confirmed the receipt and acceptance of certain letters from the Managing Director, and a resolution of the Board of Directors of said Company, by the Secretary of Commerce and Police as an acceptance of the provisions of said Act.

A statement of the condition of construction and the results of operation of the Railroads of the Philippine Islands is given below for the fiscal year ended June 30, 1909, unless otherwise stated, with statistics in relation thereto.

DAET TRAMWAY COMPANY.

Construction.—No work of construction was done on this line during the year.

Operation.—Length of Line:

	Kilometers. 1908	1909	*Decrease.*	*Increase.*
Daet to Mercedes....	7.24	7.24	....	....

REVENUE FROM OPERATION

	F. Y. 1908	F. Y. 1909	Decrease	Increase.
Freight Revenue..	₱11,008.16	₱12,966.92	....	₱1,958.76
Passenger Revenue...........	3,282.85	3,731.48	....	448.63
Mail Revenue	240.00	240.00	....	......
Total Revenue....	₱14,531.01	₱16,938.40	....	₱ 2,407.39

OPERATING EXPENSES

	1908	1909	Decrease	Increase.
Maintenance of Way & Structures...........	₱1,469.32	₱1,436.12	₱ 33.20	......
Maintenance of Equipment.....	337.26	378.09	....	40.83
Conducting Transportation.......	4,965.54	4,923.97	41.57	...
General Expenses and Taxes.....	5,936.32	5,804.55	131.77	......
Net Operating Expenses......	12,708.44	12,542.73	165.71	.....
Total Operating Revenue.......	14,531.01	16,938.40	......	2,407.39
Total Operating Expenses......	12,708.44	12,542.73	165.71	....
Operating Income	1,832.57	4,395.67	......	2,573.10
Percentage of Operating Expenses to Revenue..........	88	74	14	.....

During the year 13,245 passengers and 4,869 tons of freight were handled.

SUMMARY

A summary of the grading and tracklaying completed, with the kilometerage of lines put in operation during the year, is shown in the following table:

Road	Grading Completed	Track Laid	
Manila Railroad Co..............	13.1	48.4	65.8
Manila Electric R. R. & L. Co...	....	....	....
Manila Suburban Railways Co...	....	....	....
Tarlac Railway Co........	....	....	....
Daet Tramway Co.........	....	....	....
Philippine Railway Co..........	28.5	24.0	32.2
Insular Coal Co..............	....	....	....
Totals.....................	41.6	72.4	98.0

In the following table is shown kilometerage of railroad lines authorized by law in the Philippine Islands, with the length constructed, to be constructed, and in operation on June 30th, 1909:

Road	Authorized	Constructed and in Operation	Constructed and not in Operation	To be Constructed
Manila Railroad Co..	1,355.0	545.8 (a)	9.1	800.1
Manila Electric R. R. & Light Co........	45.0	....	....	5.2
Manila Suburban Railway Co..........	19.9	9.9	....	10.0
Tarlac Railway Co...	20.6	20.6	....	..
Daet Tramway Co...	7.2	7.2	....	....
Philippine Railway Co.	368.6 (b)	159.4	....	204.2
Lepanto Mining Co...	42.0	....	....	42.0
Insular Coal Co......	12.0	12.0	....	..

(a) Includes Belt Line, Manila, not included last year.
(b) Excludes North Negros Line and Carcar-Barili-Dumanjug Branch.

Of the Northern System lines of the Manila Railroad Company as defined in Act No. 1905 and authorized by Act No. 1510, 462.4 kilometers has been built, leaving 104.2 kilometers yet to build, making a total of 566.6 kilometers; of the Southern System lines, as defined in the above Act and authorized by Acts Nos. 1510, 1714 and 1905, 93.4 kilometers have been built, with 695.0 yet to build, or a total of the Southern System lines of 788.4 kilometers.

The "North Britisher" in the Far East

The Locomotive Engineer in the Far East has long been well acquainted with the productions of the North British Locomotive Company, Limited,—the Glasgow firm in which have been merged the interests of Messrs. Neilson, Reid & Co., Messrs. Dubs & Co., and Messrs. Sharp, Stewart & Co., names all of good repute for sound British design, material and workmanship.

It is with pleasure that we herewith give some little account of their doings in these regions, and we hope in the near future to be enabled to supplement it by what will be of equal interest, viz: some notes on their "up-to-date" work for, amongst others, the great Railway systems of the Argentine, Brazil, Chili and Peru, and for the Railways of the British Colonies and India.

In the Far East the North British Locomotive Company's connection with *Japan* was initiated in 1871, when Messrs. Dubs & Co. and Messrs. Sharp, Stewart & Co. delivered the first locomotives to arrive in that country, and this connection has been maintained until up to the present time upwards of 600 Engines constructed by them are now on Japanese soil.

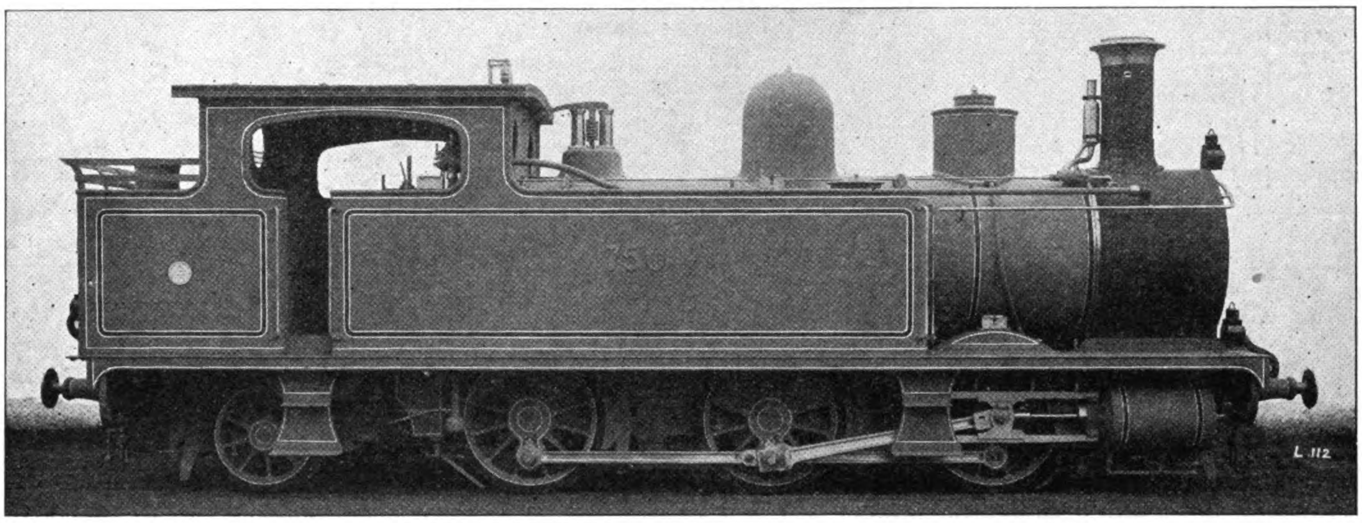
The various types supplied would alone give material for an interesting article, but we restrict ourselves meanwhile to Photographs Nos. L.112 and L.285, illustrating two types of Engines that have been delivered recently, the former being the standard "mixed traffic" Tank Engine, and the latter a Passenger Engine with Tender.

In *CHINA* the firm's connection dates back to 1887, when the pioneer locomotives "Speedy Peace" and "Flying Victory"—tiny machines with cylinders 5″ diameter and weighing each only about 5 tons—were sent into that Empire, to meet, however, with an untimely fate. The commercial entry came in the same year with the locomotives for working the coal mines in Tongshan under Mr. Kinder's supervision. Since that date they have supplied the greater number of the Engines for the *Imperial Railways of North China*, and two types, Photos. 4355 and L.199, are herewith illustrated, the former being the 17″ "Mogul" type, and the latter the 18″ "Passenger" type. The Tenders, which are not shown on the photos, are of the double bogie type, and carry 3,200 gallons of water and 3½ tons of coal.

The latest type of Engine sent out for the *Imperial Railways* is the "Mallet" for the recently opened *Kalgan* route, and these powerful Engines, four of which have been supplied, are shown on Photo. No. L.274. This, it may be explained, is not a new type of Engine, but one which has stood the test of long service on many of the European Railways. It has attained, however, in recent years, considerable notoriety through its adoption in the United States, and the successful results obtained there. The Engine is really a double-engine with one boiler, and on long grades it has the merit of doing away with the "double heading" of trains, an important feature on the Kalgan Railway where a grade of 1 in 30, 12 miles long, has to be surmounted. As will be seen from the illustration, the forward engine with its six coupled wheels is arranged on a bogie, thus giving the necessary flexibility to the wheel base for the passage of the curves.

The hind engine with its six coupled wheels is arranged on the main frame which as in usual practice also carries the Boiler, Cab, etc. It has also to be noted that the Engine is a "Compound" the forward cylinders being low pressure and the hind high pressure, the Tender which is not shown on the photo, is of the double bogie type and carries 3,200 gallons of water and 3½ tons of coal.

For the *Canton-Kowloon Railway* and for the *Tientsin-Pukow Railway*, locomotives of the *Mogul* type, as illustrated above for the North China Railway, but of a more powerful class,



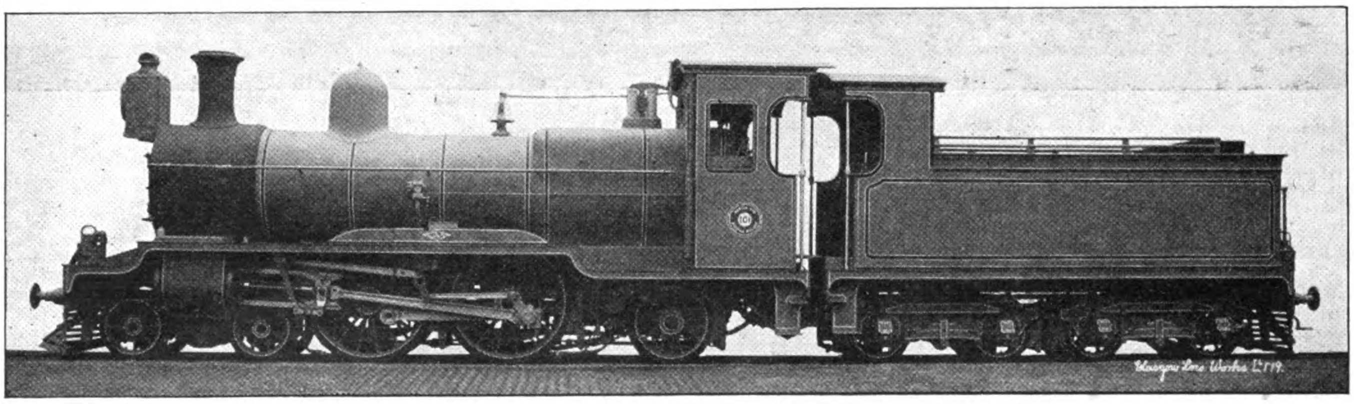
Reference No. L 112

GAUGE 3′ 6″—**IMP. RAILWAYS OF JAPAN**

Diam. of Cylinder	16″.—Stroke, 24″
Heating Surface, in Tubes	906.2 Sq. Ft.
Heating Surface, in Firebox	93.6 Sq. Ft.
Total	999.8 Sq. Ft.
Area of Firegrate	14.4 Sq. Ft.
Working Pressure	160 Lbs. Per. Sq. In.
Diam. of Wheels	4′.1″ and 3′.2″

Axles and Tyres of Steel.—Firebox of Copper.
Boiler fed by 1 No. 7 and 1 No. 8 Injector.—Tubes of Brass.

Capacity of Tanks	1716 Galls.
Fuel Space	76 Cub. Ft.
Coupled Wheel Base	12′.6″
Total, Wheel Base	19′.9″
Weight, Empty	37 Tons. 6 Cwts.
Weight, Full	49 Tons, 10 Cwts



Reference No. L 179

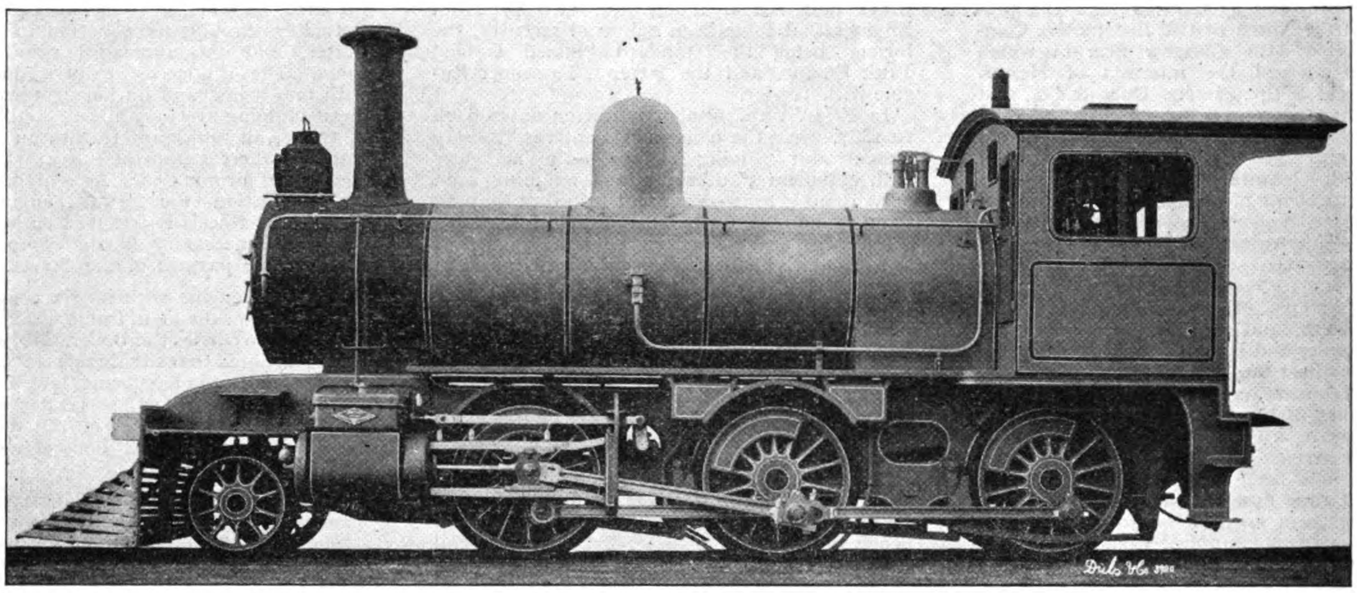
GAUGE OF RAILWAY, 3-ft. 6-in.
Type, 4-4-2.—**ENGINE**

CYLINDERS	Diameter	16-in.
	Stroke	24-in.
WHEELS	Coupled, Diameter	5-ft 0-in.
	Front, Diameter	2-ft. 7½-in.
	Hind, Diameter	3-ft. 4½-in.
WHEELBASE	Rigid	12-ft. 0-in.
	Total	21-ft. 2-in.
	Engine & Tender	43-ft. 6½-in.
WORKING PRESSURE		180-lbs. per sq. in.
HEATING SURFACE	Tubes	973 sq. ft.
	Firebox	107 sq. ft.
	Total	1.080 sq. ft
FIREGRATE AREA		16.5 sq. ft.
BOILER FEED		2 Injectors & 1 Pump.
TRACTIVE FORCE at 75% of Boiler Pressure		13.824-lbs.
WEIGHT	In Working Order	40 tons 16 cwts.
	On Coupled Wheels	21 tons 6 cwts.

TENDER

TANK Capacity	2,500 gallons.
FUEL Space	180 cub. ft.
WEIGHT, Full	32 tons 6 cwts.

NORTH BRITISH LOCOMOTIVES



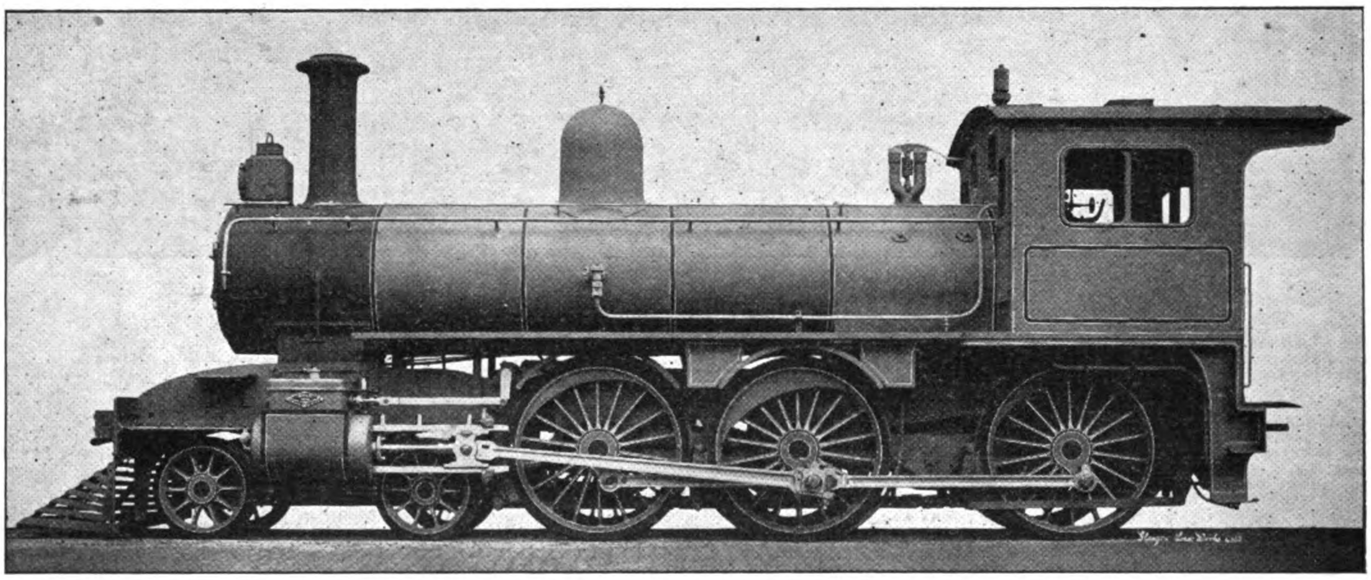
Reference No. 4355.

GAUGE OF RAILWAY, 4-ft. 8½-in.
TYPE, 2-6-0.—**ENGINE**

CYLINDERS	Diameter	17-in.
	Stroke	24-in.
WHEELS	Coupled, Diameter	4-ft. 6 in.
	Front, Diameter	3-ft 0-in.
WHEELBASE	Rigid	14-ft. 3-in.
	Total	21-ft. 11-in.
	Engine & Tender	-ft. -in.
WORKING PRESSURE		180-lbs. per sq. in.
HEATING SURFACE	Tubes	1,110 sq. ft
	Firebox	103 sq. ft.
	Total	1,213 sq. ft.
FIREGRATE AREA		20.2 sq. ft.
BOILER FEED		2 Injectors.
TRACTIVE FORCE at 75% of Boiler Pressure		17,340-lbs.
WEIGHT	In Working Order	46 tons 6 cwts.
	On Coupled Wheels	39 tons 2 cwts.

TENDER

TANK Capacity.................. gallons. FUEL Space...................... cub. ft. WEIGHT, Full.................. tons cwts.



Reference No. L 199.

GAUGE OF RAILWAY, 4-ft. 8½-in.
TYPE, 4-6-0.—**ENGINE**

CYLINDERS	Diameter	18-in.
	Stroke	24-in.
WHEELS	Coupled, Diameter	5-ft. 6-in.
	Front	3-ft. 0-in.
WHEELBASE	Rigid	14-ft. 2-in.
	Total	25-ft. 11-in.
	Engine & Tender	-ft. -in.
WORKING PRESSURE		180-lbs. per sq. in.
HEATING SURFACE	Tubes	1,298 sq. ft.
	Firebox	109 sq. ft.
	Total	1.407 sq. ft.
FIREGRATE AREA		22.2 sq. ft
BOILER FEED		2 Injectors.
TRACTIVE FORCE at 75% of Boiler Pressure		15,905-lbs.
WEIGHT	In Working Order	52 tons 11 cwts.
	On Coupled Wheels	37 tons 19 cwts.

TENDER

TANK Capacity.................. gallons. FUEL Space...................... cub. ft. WEIGHT, Full.................. tons cwts.

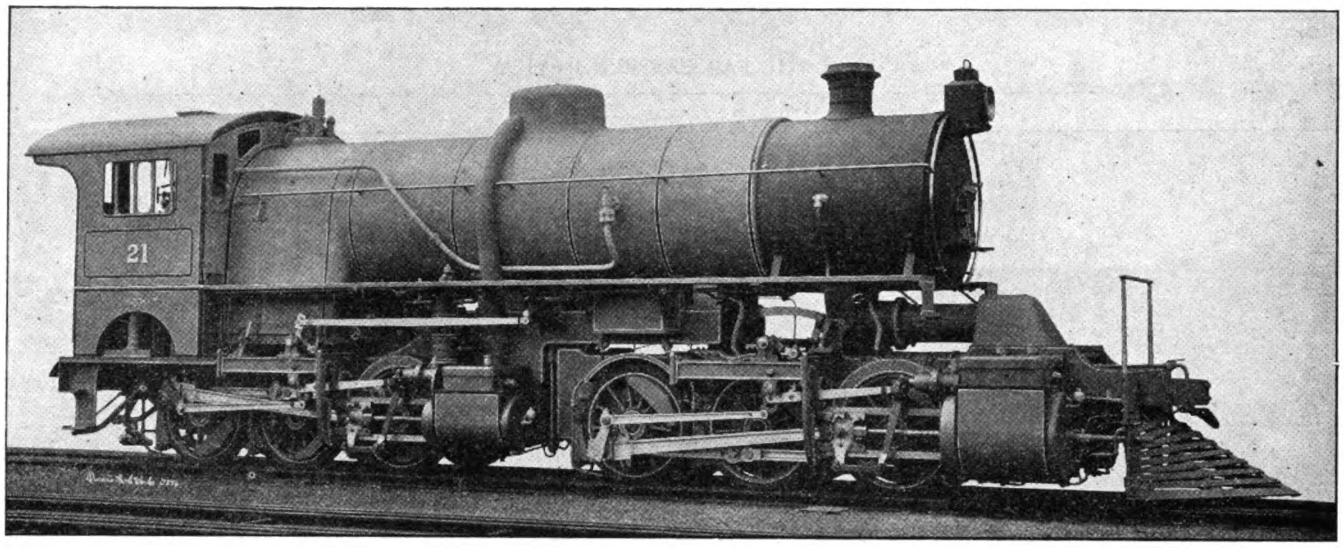
the cylinders being 19″ diameter, are presentyl under construction.

The *Shanghai-Nanking Railway* locomotives built by this Company are illustrated by photos Nos. L.101, L.102, and L.232, and form a handsome set of Goods, Mixed Traffic, Tanks and Passenger Engines respectively.

In the *Philippines* the first consignments of Locomotives from Messrs. Neilson, Reid & Co. and Messrs. Dubs & Co. were delivered to the Manila and Dagupan Railway (now the Manila Railroad Company) in 1890, and concerning these Engines it is worthy to note that after eighteen years' experience of them only a few (modern) improvements were required in twenty new Engines of the same type recently delivered by the North British Locomotive Company.

Engines of the "Atlantic" type have also been supplied to this Road for Express Passenger service, and this type, which is quite an unusual one on the 3′ 6″ gauge, is illustrated by photo, No. L.179. Five Heavy Tank Engines for Mixed Traffic work, in which the boiler and most of the principal working parts are duplicate with the corresponding parts of the Atlantics, are presently being delivered by the North British Locomotive Company.

Did we propose to dwell further on the work of this firm, reference might be made to the fact of their having delivered locomotives in the Straits Settlements, Siam, and elsewhere in the East. In closing, however, it may be sufficient to say that one of the objects which the North British Locomotive Company has constantly held before them has been to satisfy at all times their various clients who from time to time submit to their enquiries regarding special work, believing, as they do, that their extensive and varied experience can be utilized to the full in this way. The interests of the Company and of their Clients, so far as regards the East, are carefully safeguarded and watched by their Agents, Messrs. Jardine, Matheson & Co. Ltd., Shanghai, and Messrs. Okura & Company, Tokio



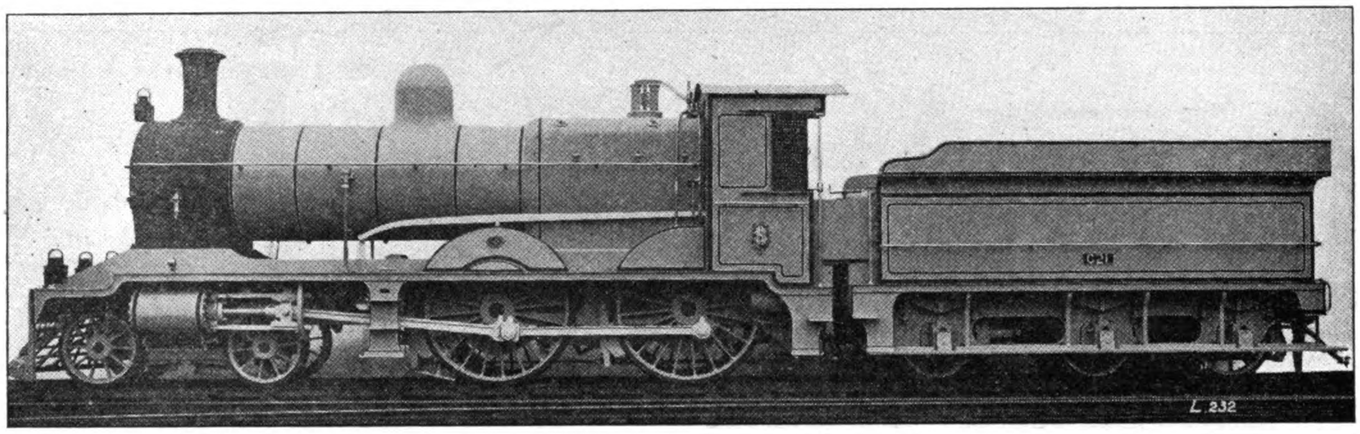
Reference No. L 274

GAUGE OF RAILWAY, 4-ft. 8½-in.
"MALLET" ARTICULATED COMPOUND LOCOMOTIVE
TYPE, 0-6-6-0.—**ENGIN**

CYLINDERS	Diameter H. P., 18 in L. P.	28½-in.
	Stroke	28-in.
WHEELS, Diameter		4-ft. 3-in.
WHEELBASE	Rigid	9-ft. 8-in.
	Total	29-ft. 4-in.
	Engine & Tender	-ft. -in.
WORKING PRESSURE		200-lbs. per sq. in.
HEATING SURFACE	Tubes	2,425 sq. ft.
	Firebox	166 sq. ft.
	Total	2.591 sq. ft.
FIREGRATE AREA		45 sq. ft.
BOILER FEED		2 Injectors.
TRACTIVE FORCE at 50% of Boiler Pressure		35,576-lbs.
WEIGHT	In Working Order	96 tons 10 cwts.
	On Coupled Wheels	96 tons 10 cwts.

TENDER

TANK Capacity .... gallons FUEL Space .... cub. ft. WEIGHT, Full .... tons cwts



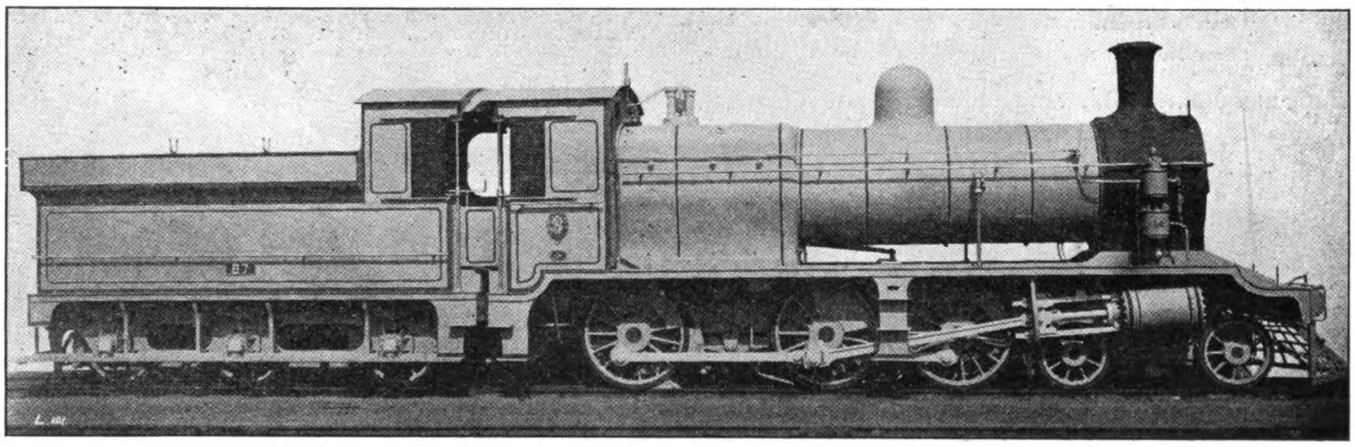
Reference No. L 232

GAUGE OF RAILWAY, 4-ft 8½-in.
TYPE, 4-4-0.—**ENGINE**

CYLINDERS	Diameter	18-in.
	Stroke	26-in.
WHEELS	Coupled, Diameter	6-ft. 7-in.
	Bogie, Diameter	3-ft. 6-in.
WHEELBASE	Rigid	8-ft. 3-in.
	Total	25-ft. 2-in.
	Engine & Tender	48-ft. 9-in.
WORKING PRESSURE		180-lbs. per sq. in.
HEATING SURFACE	Tubes	1,467.39 sq. ft.
	Firebox	162.61 sq. ft.
	Total	1,630 sq. ft.
FIREGRATE Area		28 sq. ft.
TRACTIVE FORCE at 75% of Boiler Pressure		14,395 lbs.
WEIGHT	In Working Order	57 tons 8 cwts.
	On Coupled Wheels	37 tons 10 cwts.

TENDER

TANK Capacity .... 3,500 gallons. FUEL Space .... 315 cub. ft. WEIGHT, Full .... 42 tons 13 cwts.



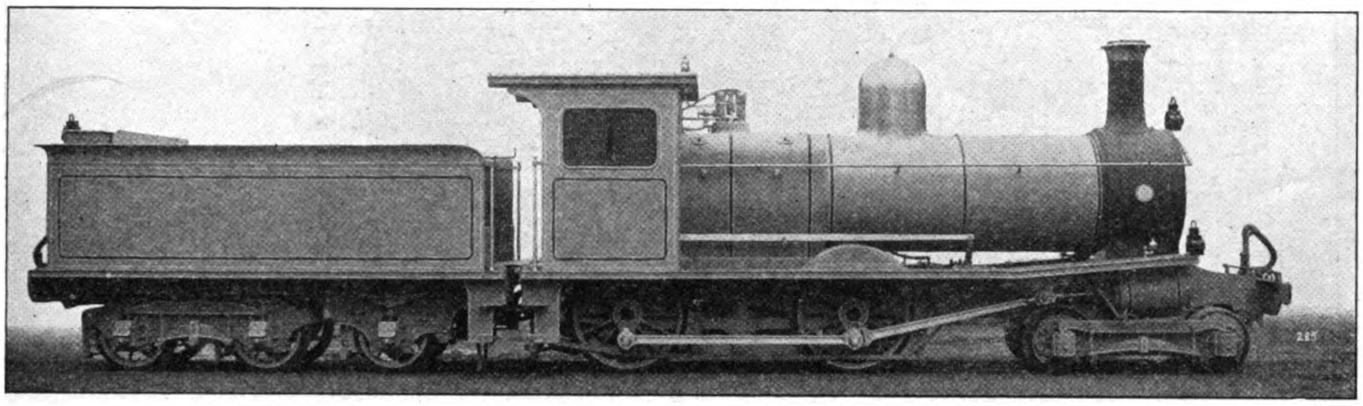
Reference No. L 101

GAUGE OF RAILWAY, 4-ft. 8½-in.
Type, 4-6-0.—**ENGINE**

CYLINDERS	Diameter	18-in.
	Stroke	26-in.
WHEELS	Coupled, Diameter	4-ft. 9-in.
	Bogie, Diameter	3-ft. 0-in.
WHEELBASE	Rigid	13-ft. 9-in.
	Total	24-ft. 11-in.
	Engine & Tender	48-ft. 6-in.
WORKING PRESSURE		180-lbs. per sq. in.
HEATING SURFACE	Tubes	1,467.39 sq. ft.
	Firebox	162.61 sq. ft.
	Total	1,630 sq. ft.
FIREGRATE Area		28 sq. ft.
BOILER FEED		2 Injectors.
TRACTIVE FORCE at 75% of Boiler Pressure		19,951-lbs.
WEIGHT	In Working Order	60 tons 6 cwts.
	On Coupled Wheels	46 tons 7 cwts.

TENDER

TANK Capacity .... 3.500 gallons. FUEL Space .... 315 cub. ft. WEIGHT, Full .... 42 tons 3 cwts.



Reference No. L 285.

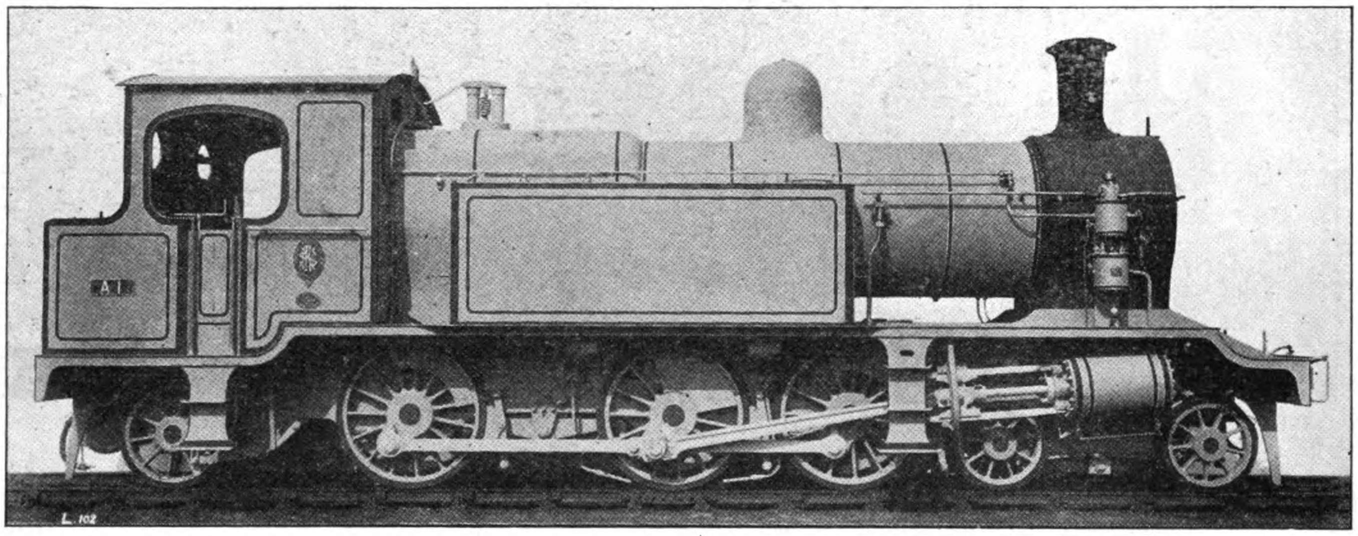
GAUGE OF RAILWAY 3-ft. 6-in

TYPE, 4-4-0.—**ENGINE**

CYLINDERS	Diameter	16-in.
	Stroke	22-in.
WHEELS	Coupled, Diameter	4-ft. 6-in.
	Bogie, Diameter	2-ft. 4-in.
WHEELBASE	Rigid	8-ft. 4-in.
	Total	21-ft. 7-in.
	Engine & Tender	40-ft. 0-in.
WORKING PRESSURE		160 lbs. per sq. in.
HEATING SURFACE	Tubes	899 sq ft.
	Firebox	98 sq. ft.
	Total	997 sq. ft.
FIREGRATE AREA		17 sq. ft
BOILER FEED, Two Injectors		1 No. 8 and 1 No. 7.
TRACTIVE FORCE at 75% of Boiler Pressure		12515-lbs.
WEIGHT	In Working Order	33 tons 10 cwts.
	On Coupled Wheels	22 tons 4 cwts.

TENDER

TANK Capacity 2300 gallons. FUEL Space 110 cub. ft. WEIGHT, Full 25 tons 10½ cwts.

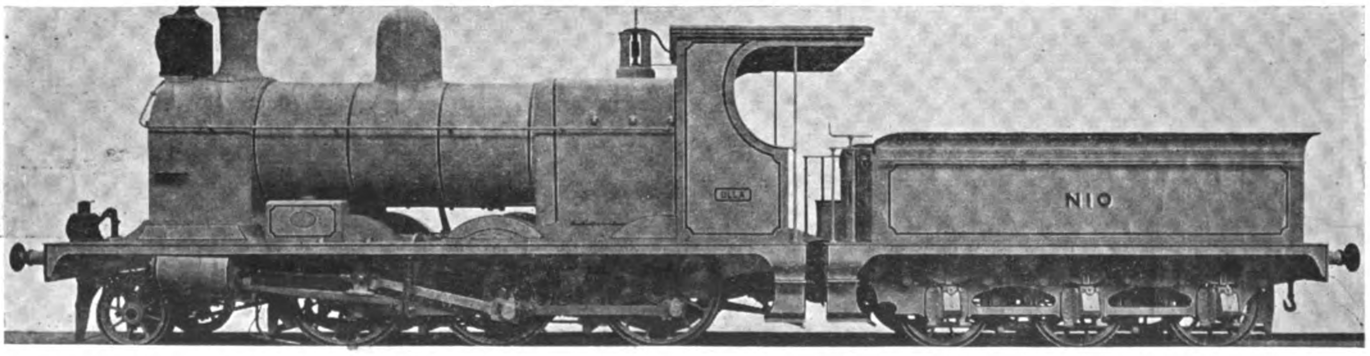


Reference No. L 102.

GAUGE OF RAILWAY, 4-ft. 8½-in.

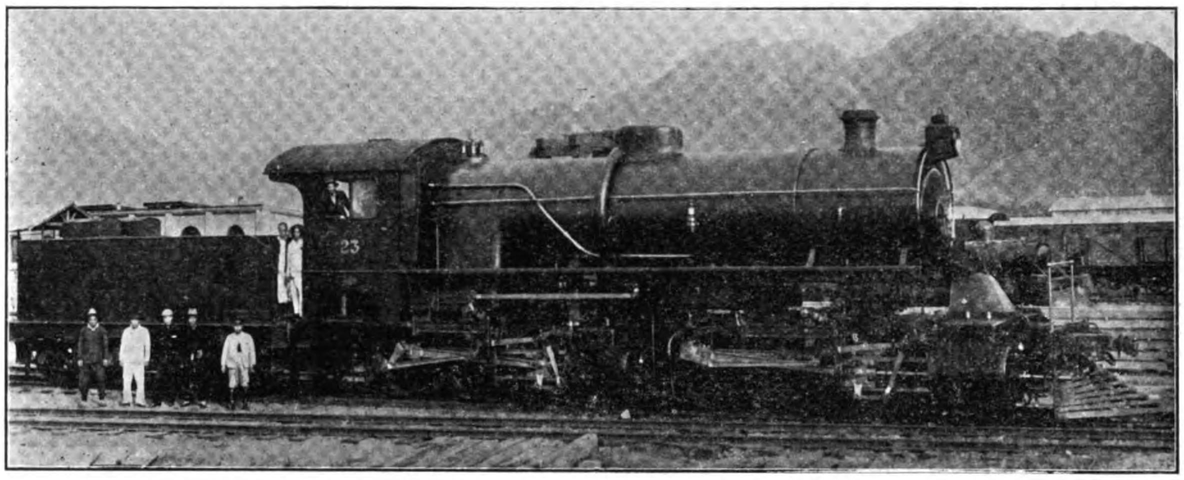
TYPE 4-6-2.—**TANK ENGINE**

CYLINDERS	Diameter	18-in.
	Stroke	26-in.
WHEELS	Coupled, Diameter	4-ft. 9-in.
	Bogie, Diameter	3-ft. 0-in.
	Radial Diameter	3-ft. 6-in.
WHEELBASE	Rigid	13-ft. 9-in.
	Total	32-ft. 5-in.
WORKING PRESSURE		180-lbs. per sq. in.
HEATING SURFACE	Tubes	1,467.39 sq. ft.
	Firebox	162.61 sq. ft.
	Total	1,630 sq. ft.
FIREGRATE AREA		28 sq. ft.
BOILER FEED		2 Injectors.
TRACTIVE FORCE at 75% of Boiler Pressure		19,951-lbs.
WEIGHT	In Working Order	74 tons 7 cwts.
	On Coupled Wheels	47 tons 16 cwts.
TANK Capacity		1,120 gallons.
FUEL Space		77 cub. ft.

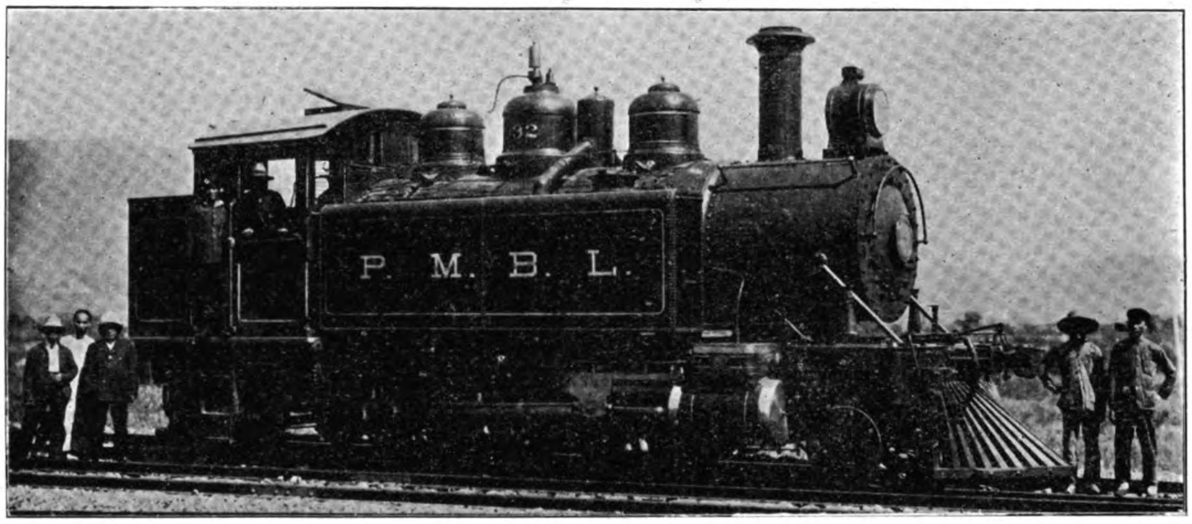


TYPE OF NORTH BRITISH LOCOMOTIVE SUPPLIED TO THE TIENTSIN-PUKOW, SOUTHERN SECTION

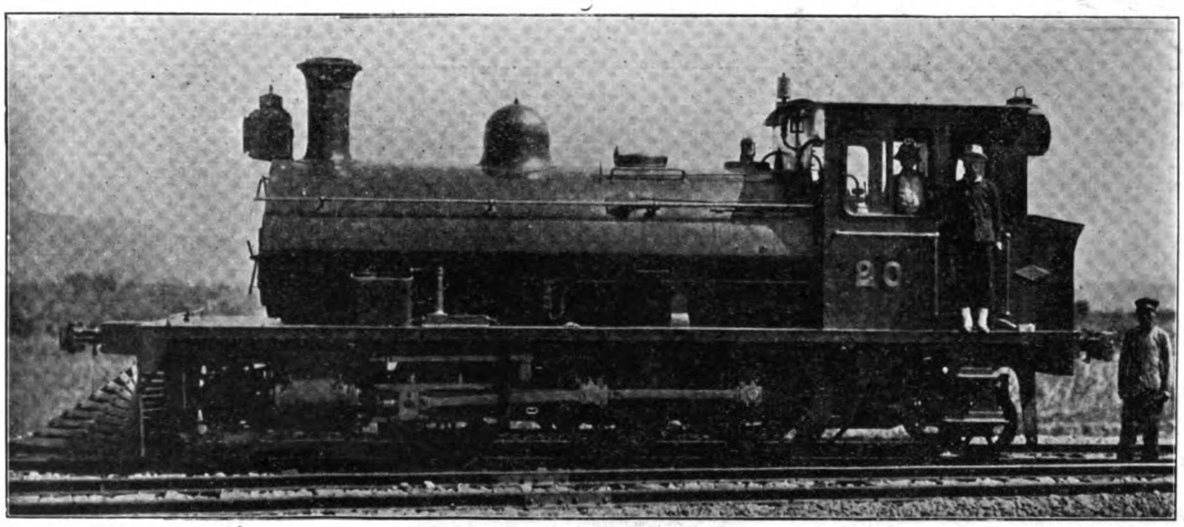
Types of Locomotives in Operation on the Imperial Pekin-Kalgan Railway



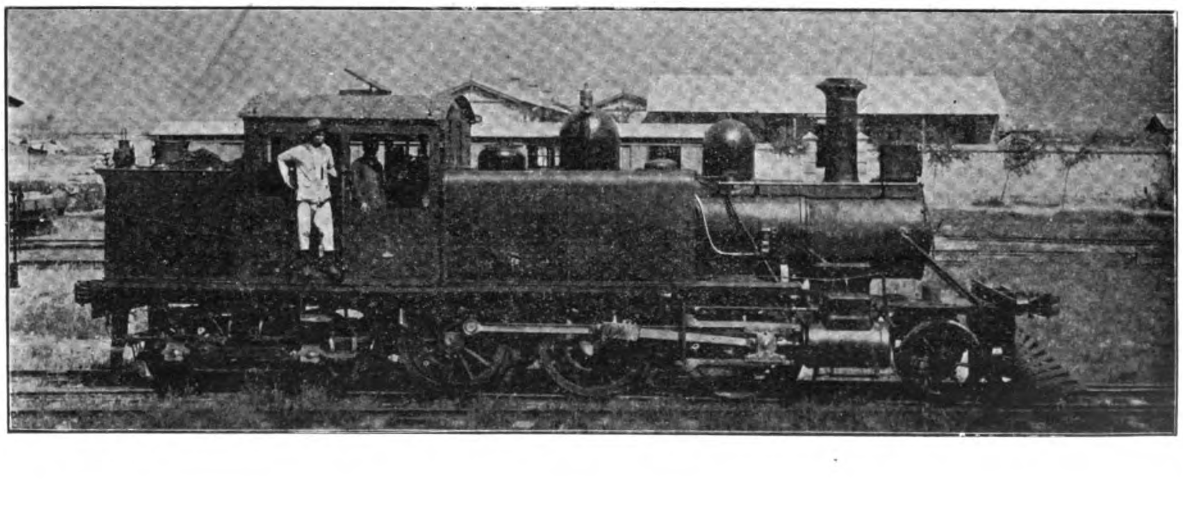
MALLET TYPE FROM THE NORTH BRITISH LOCOMOTIVE CO. LTD.



SADDLE TANK LOCOMOTIVE FROM THE BALDWIN LOCOMOTIVE WORKS



BUILT BY THE NORTH BRITISH LOCOMOTIVE CO. LTD.



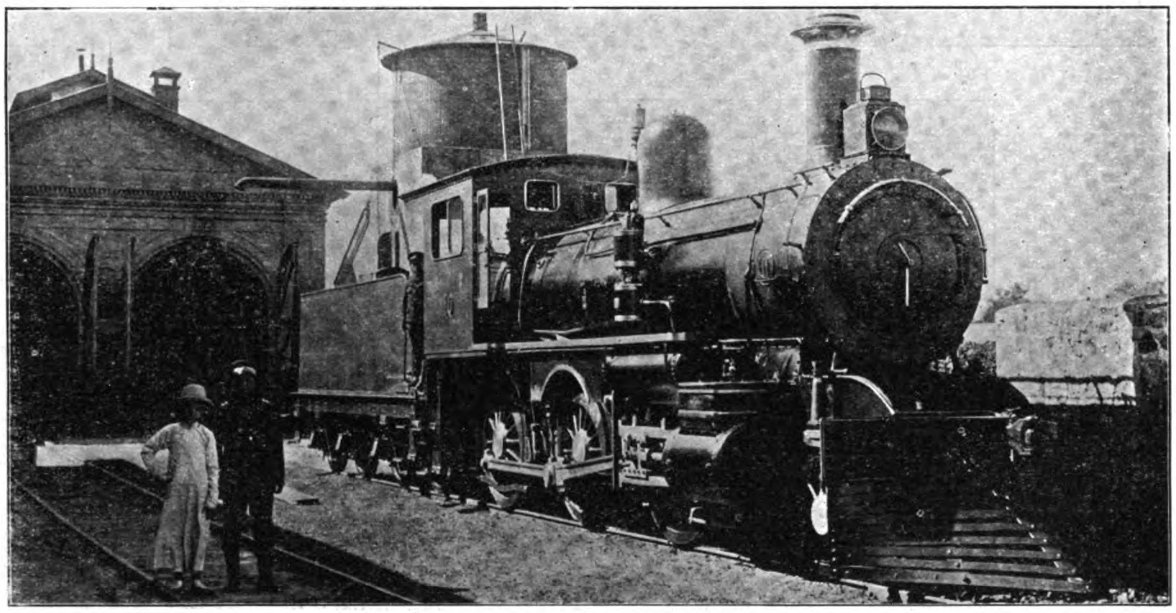
BUILT AT THE TONGSHAN WORKS OF THE I. R. N. C.

Baldwin Locomotives for the Tientsin-Pukow Railway, China

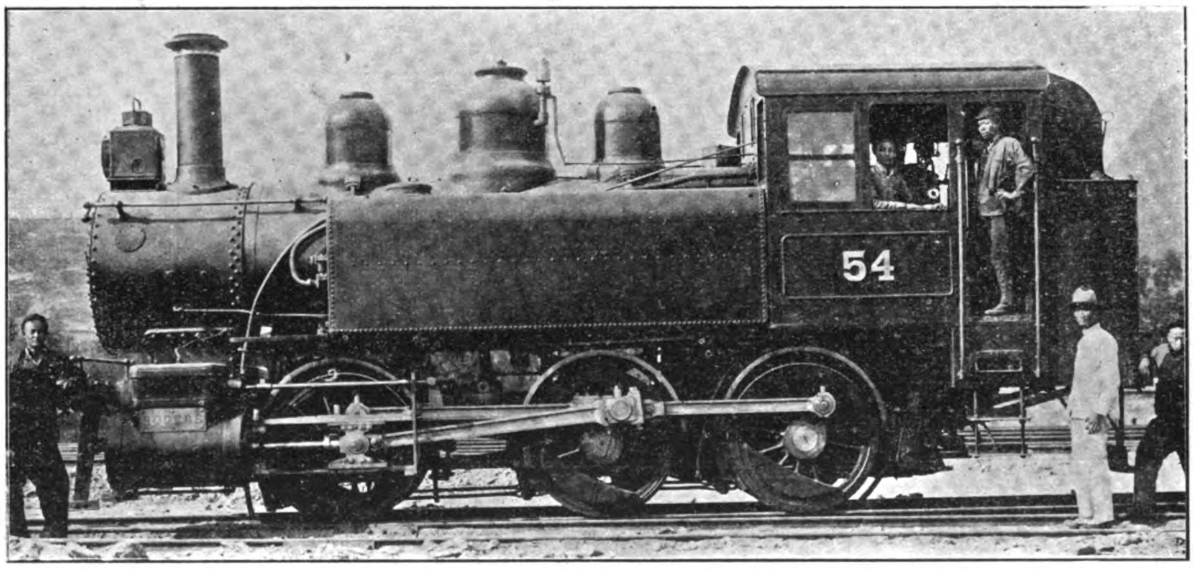
The Baldwin Locomotive Works has recently shipped to China two Mogul locomotives intended for general road service on the Tientsin-Pukow Railway. The track gauge is standard, and when compared with many six-coupled locomotives used on American roads, this design appears of moderate capacity, as the tractive force developed is 22100 pounds. The engines are, however, admirably adapted to the service required. It may be noted in this connection that while comparatively few Mogul locomotives are being built for the principal American lines, there is a steady demand for this class of power from foreign roads.

The engines under notice have straight topped boilers with inside fire-boxes of copper. The crown and sides are in separate places, and the tube sheet is increased in thickness from $\frac{1}{2}''$ to $\frac{3}{4}''$ over the area where the tubes are inserted. The staybolts are of copper. The fire-door opening is formed with a ring, which is riveted between the inside and outside sheets. The barrel is composed of two courses, and except for the construction of the dome, presents no unusual features. The dome body is of pressed steel, and is bolted to the dome bass. As the body can be easily removed, the throttle valve and its operating mechanism are readily accessible. The dry pipe is of copper.

The boiler is equipped for burning bituminous coal. The grate is of the rooking type with drop plate, and the fire-box contain a brick arch supported on studs. The smoke-box is extended, and is fitted with netting, an adjustable diaphragm plate, and a high double nozzle. The stack is straight, 18 inches in diameter.



BUILT AT THE TONGSHAN WORKS OF THE I. R. N. C.



SADDLE TANK LOCOMOTIVE FROM THE ROGERS LOCOMOTIVE WORKS OF PATERSON, N. J.

In many respects the most interesting features of these locomotives are the frames and running gear, which are designed, to a large extent, in accordance with foreign practice. The frames are of mild steel plate, 1-$\frac{1}{4}''$ thick, and rolled in one piece for each side. With this construction, the fire-box can be placed above the rear driving axle and between the frames. It can thus be made of ample depth, and of nearly the same width as the usual type of narrow fire-box when placed on top of bar frames. The frame pedestals are bolted in place, and, together with their binders, are of cast steel. The driving springs are underhung, and the loads on the main and rear drivers are equalized through beams fulorumed under the frames. These beams are of cast steel, with an I-section. The front drivers are equalized with the engine truck as in American practice.

The driving boxes are of steeled cast iron, and the driving wheel centers are of cast steel. The truck wheels are steel-tired, with cast steel centers.

Each cylinder is a separate casting, and the saddle, which supports the boiler and occupies the space between the frames, is made in one piece. The cylinders and saddle are lipped on top of the frames and securely held together by horizontal holes. The steel distribution is controlled by Richardson balanced slide valves, driven by Walschaerts motion. The links are trunioned on casting bolted to the guide bearers. The latter are of cast steel, each being formed

in one piece with a broad vertical foot which fits up against the outside of the frame and is securely bolted into place. Between the guide bearers, the frames are braced transversely by a deep cross tie. Similar ties are placed under the front of the fire-box, and ahead of the main driving axle. The frames are bolted, at the rear, to a cast steel foot plate.

The engineman is located on the right hand side of the cab, and the general arrangement of the fittings is similar to American practice. Two sand boxes are provided, and they are placed under the running boards, immediately in front of the leading drivers. The equipment includes English Westinghouse automatic quick acting air brakes. Whitworth threads are used on all bolts, nuts and staybolts.

The tender is carried on three pairs of wheels and the loads on the second and third pairs are equalized. The frames consist of steel plates; they are placed outside the wheels, and are strongly braced transversely between the axles. Steel plates are also used for the bumpers. The tank is wedge shaped, and carries 4800 gallons of water. The fuel space has a sloping floor throughout its entire length, and accommodates 7-½ tons of coal. The tender wheels, like those of the engine truck, are steel tired with cast steel centers, and were manufactured by the Standard Steel Works Co.

In general outline these engines present a pleasing appearance. They are simple in construction, and as the valve motion is entirely outside the wheels, the plate frames in no way prevent access to the working parts. The engines combine, to a marked degree the flexibility of the American locomotive with various structural features which are characteristic of European practice.

BALDWIN LOCOMOTIVE WORKS

Class 8-32 D, 776.—Road No. 15

Built for Tientsin-Pukow Ry., Southern Section.

Gauge	4′-8½″
Cylinder	19″ × 24″
Valve,	Balanced.

BOILER

Type	Straight.
Material	Steel.
Diameter	61¾″
Thickness of sheets	⅝″
Working Pressure	180 lbs.
Fuel	Soft coal.
Staying	Radical.

FIRE BOX

Material	Copper.
Length	87″
Width	40″
Depth, front	75½″
Depth, back	65½″
Thickness of sheets	sides ½″
Thickness of sheets	back ½″
Thickness of sheets	crown ⅝″
Thickness of sheets	tube ¾″ & ½″.

WATER SPACE

Front	3½″
Sides	2½″
Back	3″

TUBES

Material	Iron.
Wire gauge	No. 12.
Number	238.
Diameter	2″.
Length	12′-0¼″

HEATING SURFACE

Fire Box	140 sq. ft.
Combustion Chamber Tubes	1489 sq. ft
Firebrick Tubes	sq. ft.
Total	1629 sq. ft
Grate Area	24.2 sq. ft

DRIVING WHEELS

Diameter, outside	60″
Diameter center	54″
Journals, main	8″ × 10″
Journals, others	8″ × 10″

ENGINE TRUCK WHEELS

Diameter, Front	36″
Journals,	6″ × 10″
Diameter, Back	
Journals	

TRAILING WHEELS

Diameter	
Journals	

WHEEL BASE

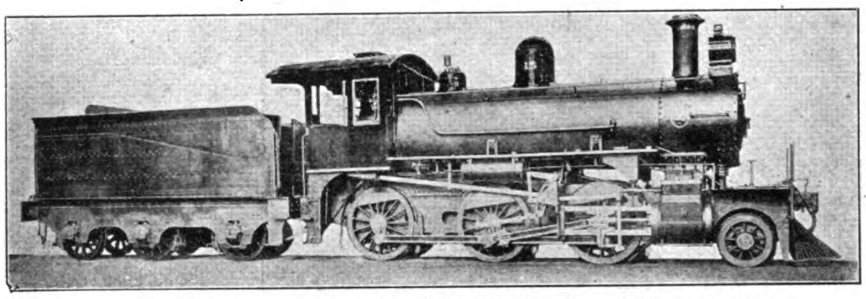
Driving	15′-0″
Rigid	15′-0″
Total Engine	23′-3″
Total Engine & Tender	46′-3″

WEIGHT

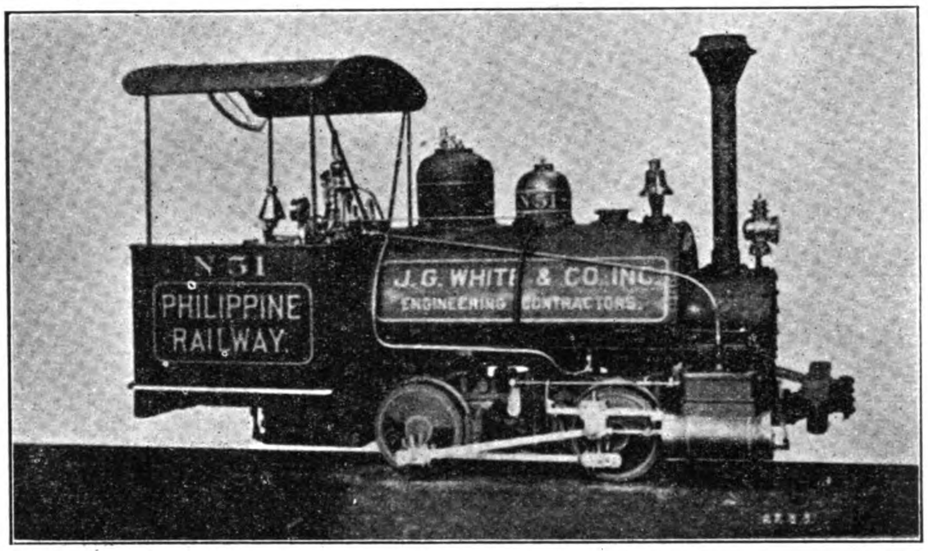
On Driv. Wheels	101800 lbs.
On Truck, front	23150 lbs.
On Truck, back	
On Trailing Wheels	
Total Engine	124950 lbs.
Total Engine & Tender, about	221000 lbs.

TENDER

Wheels, Number	6
Wheels, Diameter	45″
Journals	6¼″ × 10″ I
Tank Capacity	4000 Imp. gals
Fuel Capacity	7½ tons.
Service, Passenger & Freight.	



BALDWIN LOCOMOTIVE BUILT FOR THE PHILIPPINE RAILWAY COMPANY



THE TYPE OF SMALL LOCOMOTIVE BUILT BY THE BALDWIN LOCOMOTIVE WORKS FOR THE PHILIPPINE RAILWAY COMPANY

LOCOMOTIVES FOR THE PHILIPPINE RAILWAY

The type of locomotive most suitable for service in any particular locality is determined chiefly by the conditions existing in that locality. In the early days of railroad operation, American builders developed locomotives specially adapted to meet prevailing conditions. Railways, as then constructed, had poorly surfaced tracks, numerous sharp curves and been built to American designs for service in heavy grades. This necessitated a design of locomotive having a flexible wheel base, with the weight distributed and equalized in such a manner that each wheel found a bearing when running over uneven tracks. Locomotives fulfilling these conditions were produced and the development of the American locomotive has since progressed along the lines indicated above. American designs have further been characterized by simplicity of construction, the absence of unnecessary finish and ease of maintenance and repairs. These features have proved of value in maintaining the power where adequate repair facilities were lacking.

The conditions described above, as formerly existing on American railways, are today frequently found in provincial and colonial countries, and in such localities American locomotives have been used with marked success. The Baldwin Locomotive Works, since completing their first locomotive in 1832, have exported approximately 18 per cent of their output. The majority of these engines have newly developed countries, and their performance has proved highly successful.

Three designs of locomotives were shipped by the Baldwin Locomotive Works, during recent years, to the Philippine Railway. Engines are of the Mogul type,* with three pairs of coupled driving wheels and a two-wheeled leading truck. These locomotives are built for a track gauge of 3 feet 6 inches, and are suitable for general road service. The line has grades of 1-½ per cent, and the sharpest curves are of 15 to 20 degrees radius. The engines are fitted for burning Philippine lignite, the grates are of the rocking pattern, and the smokestacks and front ends are specially designed to prevent spark throwing. The boilers and fire-boxes are built of steel plate throughout, and the frames are of forged iron. Both locomotives are equipped with Vanderbilt tenders, having cylindrical water tanks.

*See illustrations, page 558.

MUKDEN ELECTRIC LIGHT WORKS

Mukden, April, 15th.

In 1908, the Manchurian Government was largely controlled by a coterie of foreign educated, progressive and competent officials, of which H. E. Tang Shaoiji was the leader and also Governor of the province. Many improvements were inaugurated during their brief tenure of office, not the least of which was the appropriation of funds in July for the installation of an electric light system for the capital. The funds were placed under the control of the Director of the Provincial Mint, and it was proposed to make the electric plant a branch of the Mint, and to furnish light principally for the many Government Yamens, and streets. Commercial lighting seemed rather hopeless at first, owing to the cost, and the fact that all shops close at sun down and the inhabitants as a rule retire very early.

Mr. KEY TSU YI

DIRECTOR OF MUKDEN ELECTRIC LIGHT WORKS AND CO-DIRECTOR OF THE MANCHURIAN MINT

TAOTAI YUNG HOU

DIRECTOR OF THE MANCHURIAN MINT, AND CO-DIRECTOR OF THE MUKDEN ELECTRIC LIGHT WORKS

The first plans, therefore, called for a rather limited plant, and four contracts were entered into for the purchase of equipment.

1st. With a foreign merchant for a British Engine and a German dynamo, and some construction tools.

2nd. With Siemens Schuckert for the fittings and accessories for wiring 4,000 incandescent lamps.

3rd. With the Furukawa Mining Co. for 35 miles of insulated and bare copper line wire, and 25 miles of insulated wire and lamps cord for interior wiring.

4th. With the Kirin Timber Co. for 900 yellow pine electric light poles.

In December 1908, the Managing Director of the Mint was removed, and a foreigner employed to superintend the electric installation. The Japanese had been operating an electric lighting plant within the limits of the railway zone near the station, and were anxious to extend its operation to cover the lighting of the Chinese city. The Chinese authorities, with the object of forstalling any definite demand from the Japanese for the concession, hurriedly erected about 100 poles during the winter without regard to alignment, spacing or proper setting. The value of this step was, however, diminished when the Chinese Foreign Office granted the Japanese the favor of stringing temporary wires on these poles, for the illumination of their offices during the short visit and entertainment of Prince Fushimi. The Chinese contend that, in return for this favor, the Japanese have officially demanded, through their Consul General, that before the wires can be removed, they must be purchased at a price nearly double their actual value. In September the work had progressed to the extent that the Chinese had then strung their own wires on the poles and were ready to furnish current. They then approached the Japanese with the proposition to change the wires, and, without interrupting the service, furnish them current from the Chinese plant. But this request failed to meet with a favourable response at that time, and it was not till the 15th of December last that an understanding was finally entered into, permitting the Chinese to replace the wires originally strung on their poles, as a temporary favor, and negotiations are still proceeding to determine the price which China must pay for the lines and materials so installed.

The Engineer arrived in Mukden the first of July, and began the organization of several gangs of workmen and drew plans for power station and pole line arrangements. All of the cross-arms, bolts, braces, etc., have been made in the Mint shops. House wiring was started in the Government Yamens about August 1st, and the erecting of power-station machinery August 15th. The plant was given a twelve hours test run on September 30th, and put in operation with about one thousand lights, October 3rd. The Series Tungsten Street Light-

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The leading dimensions of these two classes are as follows:

	Engine 25	Engine 494
Cylinders, diam. x stroke..	5"x18"	17"x24"
Driving wheels, diameter..	44"	50"
Steam pressure, lbs. per sq. in................	180	180
Total heating surface, sq. ft....................	733	1323
Grate area, sq. ft.........	13.8	18.9
Wheel-base, driving......	10'9"	12'0"
Wheel-base, total engine..	18'1"	19'4"
Wheel-base, total engine & tender................	46'1"	49'5"
Weight on driving wheels, lbs..................	63770	89430
Weight total engine, lbs..	76370	101980
Weight total engine, and	130000	182000
tender, lbs............	2,500	4000
Tank capacity, water, gals.	4	8
Fuel capacity, coal, tons..	....	....

The small locomotive, Number N-51, is designed for contractors' service. It has a weight of 97000 pounds. The cylinders total 5x10 inches, the driving wheels 20 inches in diameter, and the steam pressure 150 pounds. The track gauge is 2 feet. This is among the smallest locomotives built at these Works during recent years.

ing System was put in operation in November, shortly after the arrival of the final shipment of equipment. The lighting service has been supplied for seven months to date without accident or interruption, except for one period of twenty minutes, due to a misunderstanding of orders.

PUBLIC ATTITUDE.—Since the date of starting the Plant, orders for the installation of lights have been received more rapidly than they can be filled. Practically all of the new buildings, public and private, have been equipped with ample illumination. Yamens, schools, shops, theatres, hotels and residences have electric lights, with a rapidly increasing knowledge of their advantages and a desire for sufficient lights of the latest type. A good market for Heating and Cooking apparatus, as well as small Power Motors, is being developed. The G. E. Series Tungsten Street Lighting System has been generally approved by the Officials and Public, and is giving every satisfaction, as it is peculiarly adapted for the streets of a Chinese city.

LOCAL PHASES.—Due to the number of poorly constructed telephone lines and the inflammable interior walls and ceilings of houses, special attention and extra precautions have been taken to protect all circuits with enclosed safety fuses. Double the number of fuses that are used in American or European practice have been placed in the circuits. Wires of ample size have been used and special efforts have been made to securely fasten wires to insulators. The poles are set deep and well guyed, and strong cross-arms with iron insulator-pins support insulators designed for a much higher voltage than that in use.

PLANT DATA

Normal capacity of present plant	5500 lights—16 CP.
Lights in Operation	5000 " Carbon.
Street Lights 60 C. P. Power	300 Series Tungsten.
Miles of Streets Lighted	10
Miles of Pole Line Constructed	23
Miles of Wire on Poles	70
Capacity of Line Wires	20000 lights.
Transformers Installed	62
Capacity of Transformers	8000 lights.

PLANT EXTENSION.—Shortly after the date of putting the plant in operation the management was convinced that the plant would be loaded to its capacity before the following spring, and arrangements were made for its extension. Owing to the high cost of fuel, the most efficient machinery would be most economical and it was decided to instal a 600 H. P. Curtis Steam Turbine driving General Electric Dynamos of 400 Kilo-Watts capacity and capable of supplying from seven to ten thousand lights, 16 c. p. carbon lamps each. To add to the reliability of the plant, a separate small Turbine driven Exciter Dynamo of 20 kilo-watts capacity will be installed. The steam from the turbines will be condensed in Wheeler Surface Condensers and a high vacuum held with Electric Motor-driven Pumps. The condensed steam will be pumped direct to the boilers and used continuously, adding only sufficient water to make up for leakage. Babcock & Wilcox Boilers will be installed of the latest design and equipped with automatic Mechanical Stokers to regulate the supply of coal and control the fires. A Super-heater will be integral with the boilers to eliminate the danger of water in the steam. The boiler capacity will be sufficient for the two turbines.

The General Electric Company of New York has received orders for Transformers, Wire, Meters, Lamps and Wiring Supplies of the most approved design, which will be delivered this Spring. The quantities will be sufficient to bring the System to twelve thousand lights. The equipment for four hundred more G. E. Series Street Lights of the same type as adopted by the Shanghai Municipal Council, will also be delivered this Spring, with a number of Flame Arc-lights and miniature lights for advertising signs.

COMMERCIAL.—Although power for lighting is sold by meter cheaper than in other cities in China, the receipts for lighting service have considerably exceeded expenses from the start, and with the plant completed as now designed, the receipts will cover operating expenses and cost of extensions, and leave a reasonable profit on the invested capital.

TAOTAI HAN KAO CHIEN
COMMISSIONER OF FOREIGN AFFAIRS FOR THE MANCHURIAN VICEROYALTY

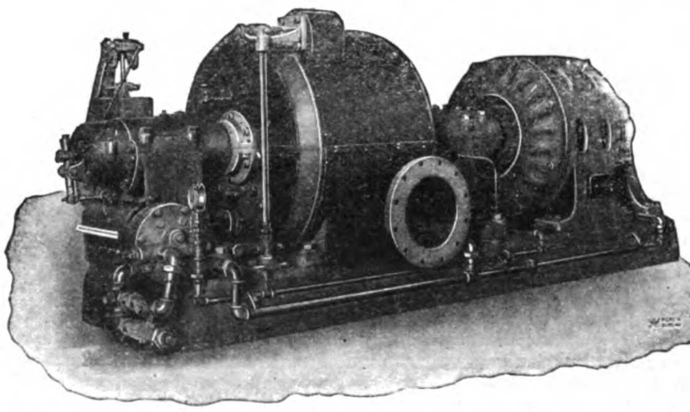
By next summer all of the mint machinery will be driven with 25 H. P. and 50 H. P. General Electric Company's three phase Induction Motors, supplied from the lighting dynamos, making it profitable to run the plant all day supplying motors installed in any part of Mukden, as well as fans and other electrical conveniences.

The credit for the success of this Plant must be given to Taotai T. Y. Key through whose foresight, ability to appreciate new conditions, and knowledge of engineering problems, it was made possible to complete the installation of the Plant in a space of time hitherto considered impossible in China. All the installation work (except some trivial pole setting done previous to the arrival of the General Electric Co.'s Engineer from New York and which it was necessary to do over again) was done between the dates of July 2nd, and September 30th, when lights were turned on a period slightly under three months, and the Chinese and Foreign inhabitants of Mukden have repeatedly given testimony to the extreme quickness with which the Engineer in charge successfully completed the work, after a proper beginning was made on his arrival.

NEW FAIRBANKS-MORSE MARINE ENGINE CATALOGS

The quality, finish, design, attractiveness and completeness of the Fairbanks-Morse beautiful catalog No. 113 is very typical of their 1910 line of Two-Cycle Marine Engines, which are fully described and well illustrated therein. This catalog is handsomely gotten up, is printed on a high grade of enamel paper and contains many fine halftones and complete information covering their line of two-cycle engines. For 1910 they are offering a new Type "G" engine which has many improvements over their 1909 Type "F" and which is built in sizes from 6 to 45 HP in one, two, three four and six cylinders. This type embodies all the latest improvements and has a special feature of "auto-control" making it particularly adaptable to boats where the engine is located forward. The Type "E" two-cycle marine engine, sizes 3½ HP and 7 HP single and double cylinder, is also fully covered in this catalog No. 113, and we note the few changes in their 1909 design have added greatly to its efficiency. Both Types "E" and "G" are beautifully finished and of a design which presents a strikingly fine appearance.

The Fairbanks-Morse Four-Cycle line of Heavy Duty Marine Engines is fully described and illustrated in their new catalog No. 112B. These engines are so well known and hold such an enviable reputation for reliability and service that they need no particular comment. The sizes range from 20 to 100 HP and are built in two, three and four cylinders.



600 H. P. CURTIS STEAM TURBO DYNAMO SETS OF THE ABOVE TYPE TO BE INSTALLED AT MUKDEN

FAR EASTERN RAILWAY NEWS

THE GEMAS-KUALA PILAH RAILWAY.—This line, which connects Gemas and Kuala Pilah, a distance of approximately 36 miles in length, was opened for traffic by the F. M. S. Railways on April 4th. The branch from Kuala Pilah connecting with the East States Trunk at Bahua station is 13 miles in length and from Bahru to Gemas, 23 miles. The opening of this line brings Kuala Pilah within 162 miles by rail from Singapore.

The stations along the line are Kuala Pilah, Juasseh, Bahau, Rompin, Plangei and Jempol. The distance is covered in about two hours.

NEW SHANTUNG RAILWAY.—Negotiations are in progress between German representatives and the Chinese Government with reference to the construction of a line connecting Ichoufu with Tsingtao. It is understood that a loan is being arranged with the Deutsch-Asiatische Bank similar to the Pukow loan and the railway will be built by the Chinese. It is not improbable that the Government expects to receive some assistance in this construction from the profits of the Tientsin-Pukow line.

THE CANTON-KOWLON RAILWAY.—H. E. Liang Shih-yi of the Board of Posts and Communications has been visiting Canton adjusting the difficulties on the Chinese section between the natives and the railway authorities. Recently a mob of about 3,000 threatened the destruction of this line and made a demonstration near the British boundary. H. E. the Governor of Hongkong recently made a tour of inspection over the British section, and with the exception of one bridge the trip was made from Kowloon Point to the frontier by rail.

THE YALU BRIDGE DIFFICULTY—As near as can be ascertained the negotiations between the Chinese and Japanese authorities with respect to the construction of this bridge have been satisfactorily concluded. The agreement as it now reads provides that the half of the bridge on the Manchurian side will be purchased by China after 15 years or the date upon which the Antung-Mukden Railway is redeemable. China is to establish a custom house on the western bank for the inspection of trains. Details are to be arranged later. It will be remembered that the boundary between Korea and Manchuria is established in the middle of the Yalu River. The sum of yen 5,000,000 has been appropriated by the Japanese government to cover the cost of this construction which is expected completed in 1912.

ANTUNG-MUKDEN CONSTRUCTION.—With the recent open weather there has been renewed activity in construction, over 80,000 coolies being reported working on the line. Frequent collisions between the Chinese and Japanese police are reported, but an adjustment is expected satisfactory to both sides. The following signal stations have been converted to passenger stations:

Taling, Tatung, Fuchin, Chinkeng, Chinchia, Fenshuiling, Liuchiaho, Heikeng, Tafangshenling and Hamatang.

SUMATRA RAILWAYS.—A proposal is being considered to construct a line connecting Sawa-Loento and the east coast of Sumatra at a point directly opposite Singapore. This will be followed by a direct line from the Ombilan mines to Padang. These railways will facilitate the transportation of coal to the coast.

PEKING OVERHEAD TRAMWAYS.—Advices from Peking are to the effect that the proposal of an American company to instal an elevated railway in Peking has been declined.

THE KIRIN-CHANGCHUN RAILWAY.—The construction on this line is now under way and a site has been chosen for the Changchun station at a point north of the east gate of the walled city and on the bank of the Itung, a branch of the Sungari. It is considered desirable with a view to making connections with the South Manchuria at this point at once in order to facilitate the transportation of materials for the line.

THE FUKIEN RAILWAY COMPANY.—The first section of this line was opened to traffic on May 9th. The terminus is at Seng Suu to which point the railway ferry carries passengers from Amoy. The section opened to traffic is only two miles in length and has taken over three years to complete on account of lack of funds. The construction and operation is entirely under the direction of Chinese.

PEKING RAILWAY NEWS.—The following is a résumé of new railway lines to be constructed with Chinese capital and by Chinese engineers: The Tsang-Hsu Railway from Chinkiang by way of Tsing Kiang-pu to Hsuchow fu, a distance of 100 miles; Peking-Ching-wang-tao Railway or rather a branch of the Peking-Kalgan, a distance of 100 miles; the Tiao-Liao Railway running from the upper part of the Liao to Tiao Nanfu, Manchuria, a distance of 100 miles.

FOUR TRACKS FOR THE SHIMBASHA-HODOGAYA RAILWAY.—The Railway Board of Japan has decided to double the present double track on this section of the Tokaido line. Some difficulty is expected in acquiring the land necessary for the widening of the road bed.

THE CANADIAN GRAND TRUNK LINE.—With the completion of this Canadian Transcontinental railway in September the distance across the continent will be shortened by about 500 miles.

OIL FOR FUEL IN JAPAN.—The use of oil for fuel for the locomotives on the line to Hachioji has been found satisfactory as a result of tests made last month and beginning the first of May, all the passenger locomotives will burn oil.

HONAN-TUNKWAN LOAN AGREEMENT.—This agreement as published in the *Sinwanpao* has twelve sections under which the railway agrees to borrow Tls. 2,000,000, the interest to be at the rate of 6.8% and the bonds to be taken up by the Kungyi bank at 95. The Kungyi Bank will advance Tls. 500,000 at once and the balance in September this year. A penalty for delay in advancing these sums is provided at the rate of Tls. 5 on every Tls. 10,000 per day. And if delay extends over a month he railway company may decline to accept the loan. The agreement to repay carries the same penalties. The revenue from salt duties will be given as security. The loan will extend over a period of eight years and may be retired previously at option of the railway. The bank must not interfere with the construction or administration nor be permitted to inspect the railway accounts. If the railway fails to meet its obligations in the payment of interest and principal when due, the railway company agrees to turn over the line with equipment, etc., to the Board of Agriculture, Industries and Commerce to be valued officially and the price decided upon turned over to the bank in payment in full for balance of loan unpaid.

THE BANGKOK-SINGAPORE RAILWAY.—A report from Berlin is to the effect that two German engineers have left there to join the English staff engaged in surveying this line. It is expected that the construction will take over seven years. The line in Siam is approximately 950 miles in length.

NEW TRANS-FORMOSAN RAILWAY.—A party of engineers is now engaged surveying the route of a railway from Bashi-ho on the west coast to Karenko on the east coast of Formosa.

RAILWAY CONNECTIONS AT KUALA LUMPUR.—Recommendations have been made for a readjustment of the through traffic from Penang to Singapore now greatly delayed by the large local traffic at Kuala Lumpur where the trains run into a terminal and backed out again instead of through a central as suggested by J. E. Bach, A. M. I. C. E.

THE SHANTUNG RAILWAY COMPANY.—The shares of this company have advanced to 130 as a result of the declaration of a dividend of six per cent. compared with 4.75% for 1908. The desire of the Chinese Government to acquire this railway has also been given as another reason for the advance in price.

MALAYA RAILWAYS.—The budget considered by the Federal Council for 1910 dealt with an estimated revenue of $23,250,000, an expenditure of $26,000,000, and an accumulated surplus of $37,000,000 approximately. A second trunk line is being constructed between Negri Sembilan and Pahang and will prove of great benefit to the latter state which has been sadly in need of lines of communication to aid her development.

THE CHEFOO-WEIHSIEN RAILWAY.—Latest advices from Chefoo are very encouraging. Governor Sun Pau Tschi has guaranteed the balance necessary to make up the three millions for the construction of the section to Hwanghsien and construction on that section will begin early this summer. The Governor believes that when this section is completed and open for traffic that its success will encourage capitalists to provide funds for the completion of the line.

SIAMESE RAILWAYS.—The construction of the new railway bridge at Petchaburi is nearing completion. The trackwork has been completed as far as Cha-am and when he railway bridge is finished tracklaying will begin southward.

INDIAN WORKSHOPS IMPROVEMENT.—*Railways* announces that the Railway Board has sanctioned an estimate for the new carriage and car shops of the North-western Railway at Lahore. The workshops of the East Bengal State Railway are to be turned into locomotive works and are located at Kanchrapara.

THE SZECHUAN-HUPEH RAILWAY.—A correspondent of the *North China Daily News*, writing from Chengti, reviews the history of the effort of the Chinese to build this line so as to avoid arranging a foreign loan for that purpose. He has taken the pains to make an abstract from the data available showing the receipts and disbursements of the company. Apparently Tls. 15,405,952 have been paid in and a balance of Tls. 10,421,958 remains on hand while nothing has been accomplished in the way of construction for the Tls. 5,000,000. Of the balance on hand it appears the most of it has been advanced to private firms.

At Hankow, Tls. 1,121,385 is invested in the Hangyang Iron Works while the rest, Tls. 4,130,970, is out at interest with private firms. At Chengtu Tls. 782,202 is out in the same way. Tls. 46,136 has been invested in a Tannery and Tls. 100,000 in an opium refuge. The whole of the sums at Shanghai, viz: Tls. 3,439,779 and at Chungking, viz: Tls. 690,102, are also let out at interest with private firms.

Work is being commenced at last on the first section from Ichang to Kweifu in Hupeh, a distance of 90 miles, which is expected to absorb Tls. 10,000,000. The correspondent is not impressed with the capacity of those in charge to carry out the work to a successful conclusion and predicts that the line will eventually have to be subjected to foreign expert and financial assistance or it will never be constructed.

THE SIBERIAN RAILWAY PROSPECTS.—It is not generally known that during the last year on the Siberian Railway extending from Cheriyabinsk to Irkisk, a distance of approximately 2,000 English miles, the freight carried was over 30 per cent. greater in volume than in the previous year while the receipts increased by about 20 per cent. When it is known that this line was being operated at a loss not more than three years ago it would be well to reserve opinion on the future of the Trans-Baikal or the Chinese Eastern Railway with which lines the Siberian line is often confused. Commenting on the relation of the Siberian Railway with other Russian lines the *China Tribune* offers some interesting information that tends

to show that this line promises to become the most profitable in the Russian Empire. A glance over the statistics for the eight months from January to August, 1909, says the *Tribune*, will show that the entire receipts of the Government railways in Russia amounted to 357,000,000 roubles. This is an increase of 10,000,000 roubles over the gross receipts during the same period of the year before last. On the other hand, the expenses aggregated 284,000,000 roubles, 13,000,000 less than the sum spent during the previous year, while the net receipts in the eight months in 1909 show an increase of 23,500,000 roubles over that of the corresponding period in 1908. What portion then did the profit of the Siberian Railway contribute toward this aggregate amount?

In regard to the freight traffic, the amount the Ekaterinskaya, the Southern, and the South-Western Railways handled was each an increase of about 27,000,000 poods over the goods transported during the previous year. Like the abovementioned lines in European Russia, the Siberian Railroad also increased the volume by the same amount, that is to say 32% increase. But the railroads near Moscow and those in Poland and Central Asia all experienced a decrease of freight.

In regard to the gross receipts, the South-Western Line leads the list with 39,900,000 roubles followed by the Southern Railway, 37 million roubles, and the Ekaterinskaya Line, 34 million roubles. The Siberian Railroad comes next with 32,000,000 roubles which is an increase of 5,100,000 roubles or 19% over the receipts of the previous year.

Concerning the expenses, the South-Western Railway spent 27,500,000 roubles, while 24,500,000 roubles and 24,000,000 roubles were spent respectively by the Southern and Ekaterinskaya Lines, against 20 million roubles of the Siberian Railway. When the matter is looked at from the point of net profit, the latter line cleared 12 million roubles and occupies the position second to the South-Western Railway, 13,000,000 roubles, of all the Government railway in Russia that made money.

It is expected that notwithstanding many alterations in the Eastern and Western Sections the double tracking of the Siberian Railway will be completed by the end of 1912. According to *Engineering*, from St. Petersburg, the actual line proceeds via Wiatka in an easterly direction to Perm. The old line went from Perm first northeast and then south, via Nishny Tagilsk, along the Ural Mountains to Jekaterinburg. This section had a length of 310 miles. The new almost completed track cuts in a nearly straight course from Perm via Kuara to Jekaterinburg, avoiding the mining districts which the old line served, and reducing the length of the section to 244 miles. Beyond Jekaterinburg the old track led via Cheljabinsk and Tjumén to Omsk, on the River Irtisch. The new track passes via Cheljabinsk and Kurgan (on Asiatic territory), and Petropavlosk to Omsk, 100 miles will be saved on this section, which has only recently been taken in hand. The direct service from St. Petersburg to Omsk is to be carried on at a minimum average speed of 26 miles per hour. Further important changes and additions are planned in the Extreme East. So far, the line cuts through Manchuria, where the railway is partly under Russian and partly under Japanese administration, and ends at Vladivostock, the Russian port on the Japanese Sea, in the same latitude as London. Peking is reached from Harbin junction in Manchuria by a branch proceeding to the southeast via Mukden and Hsinmintun. In order to connect Peking directly with the Siberian, and thus with the European, railway system, a line is to be built from Peking north, through Eastern Mongolia. The section of this line which lies in China proper, from Peking to Kalgan, is already working; this section has a length of 135 miles. Following more or less the great caravan route across Eastern Mongolia, the railway is to join the Siberian system via Kiachta, south of Lake Baikal, near Myssowaja; this Mongolian railway will have a length of nearly 1000 miles. When these projects will have been carried out, the journey from Paris to Peking, a distance of about 6300 miles (instead of 7500 miles via Harbin and Mukden), will be completed in 9½ days; at present it takes nearly fourteen days. The lengths of the various sections, and the average times to be taken on them, are the following:—Paris-Berlin, 626 miles, in 18 hours; Berlin-St. Petersburg, 1020 miles, in 20 hours; St. Petersburg-Perm, 1075 miles, in 41 hours; Perm-Irkutsk, 2315 miles, in 90 hours; Irkutsk-Kiachta, about 300 miles, in 12 hours; and Kiachta-Pekin, about 390 miles, in 40 hours.

THE SHUN-CHI OR THE SHUNTEHFU-CHINANFU RAILWAY PROJECT.—Peking advices are to the effect that the construction of a railway connecting Shuntehfu in Chihli, province and Chinanfu in the province of Shantung, covering a distance of 480 li or 170 miles, 100 miles of which will run through Shantung and 60 miles in the province of Chihli, has been authorized. The route chosen passes from Chinanfu through Chiho, Yucheng, Hsiatsin, Jenping, Kaotang, Linching and Kuantao in Shantung, thence into Chihli via Chuchou, Weihsien, Pingsian, Kwangtsung, Nanho, Hsingtai and joins the Ching-Han Railway at the Shuntehfu station.

The construction of this line offers few engineering difficulties as the country through which it will pass is generally level. There are in all twenty-two rivers and canals to cross, including the Yellow River, and it is proposed to utilize the bridge of the Tientsin-Pukow at Lokou. Of the balance of the rivers none exceed a width of 130 feet. The cost of the entire line is estimated at Tls. 5,000,000. While the districts through which it will pass has suffered from severe floods and the natives are very poor, under favorable conditions the line will pay well. It will be of great strategetic and political importance to the emipre.

The project was first proposed several years ago, but the Tientsin-Pukow Railway project took precedence and it was not until a year ago that the matter was again taken up by H. E. Hsu Shih Chang who directed the Viceroys of Chihli and the Governor of Shantung to present new petitions asking for the construction of this line. Governor Sun Pao of Shantung dispatched engineers to verify the line and report and the result was the approval of the line by the Peking authorities.

MEDALS FOR CHINESE RAILWAY EMPLOYEES.—The Board of Communications recently submitted a memorial to the Throne proposing to confer medals on the various staffs of the steamship, railway, telegraph and posts administrations as an encouragement for those who prove efficient and industrious. An official résumé of the deliberations of the Board on this subject was also submitted in which that body announces that the services of steamship, railway, telegraph, and posts are established for the purpose of providing easy means of communication and adds that, although the Board is in charge of the interior management of these administrations, it depends to a great extent upon the staffs to properly fulfil this mission. Quoting from the Board's deliberations, we find that it reached the conclusion to recommend medals as follows: The staffs employed in the various offices of the telegraph and railway administrations, such as engineers, mechanics, police inspectors, operators, and many others, are already very large and will be greatly increased when the steamship and posts administrations revert to its control. Thereupon it shall be the duty of the board to provide regulations for punishing the lazy and rewarding the industrious. There being no prospect of any member of any of these staffs to secure higher position or official rank while, on the other hand, he is subject to fine for trifling offences and punished or dismissed for severe offences, just how to reward them is a difficult problem. To grant them official rank which they do not deserve or to reward them with increase in pay do not seem feasible. The former is not to be considered and the latter would result in good deeds bankrupting the treasury. Therefore it has been decided that the most feasible way of granting rewards for good service is to confer medals similar in form to those issued by the Board of Interior, of which there are five classes with ranks—from the 5th to the 9th rank—in recognition of good services rendered.

REORGANIZATION OF THE PEINLO RAILWAY STAFF.—The Board of Communications lately memorialized the Throne on the subject of reorganizing the foreign and the Chinese staffs on the Peinlo Railway with a view to reducing expenditure and reforming its administration. This line runs through the province of Honan from Keifengfu to Honanfu. In the loan agreement concluded with the Belgians in the 29th year of Kwung Hsu in connection with the construction and operation of this railway, it was stipulated that the Chinese Railway Administration should appoint the members of the staff. Recently the Board of Communications was advised that the Belgian Syndicate had assumed control of the traffic in Keifengfu and the former interpreted this action as an attempt on the part of the latter to usurp the powers of management with the intention of employing an additional number of foreigners. The Board noted in its memorandum that while steps had been taken to dispense with the services of those foreigners who could be spared, only a few of this number had been discharged. After serious consideration of the question the Board has decided that reorganization or change in the administration of a railway as soon as it is opened to traffic is the remedy to prevent the management of the traffic reverting to foreigners.

As a result, the Director of Railways, H. E. Liang Shih Yih, has been instructed to arrange with the Belgian Syndicate for the reduction of the staff and to make an inspection of the line with a view to reorganization of the administration as well as officers and employees. In addition, he is to confer in company with the manager of the line, with the Chief Belgian Engineer, with a view to negotiating with the head office of the Syndicate in Europe on the question of the reduction of its staff. Under the following five headings the Board has decided to direct the reduction of the staff of this line:

1. Staff in the Managing Department, out of the officers in charge of the purchasing of land and policing, interpreters, clerks, medical officers—19 in all—three will be retained.

2. Engineering staff:—Out of the overseers, interpreters, tracers, paymasters—42 in all—11 will be retained. All the staff now employed in the repairing of the roads, creek and bridges will be dispensed with as soon as the work is completed.

3. Traffic staff:—Although the traffic on this line may be increased, the line is not long enough to require a traffic manager. Only one foreign district inspector is to be stationed at Changchow together with three Chinese district inspectors.

4. Factory Staff:—One factory district inspector and four Chinese mechanics at the locomotive factory to be required.

5. Staff at the head office of the Belgian Syndicate in Europe:—It has been decided that from the 1st month of the next foreign year the yearly salaries of the managers, engineers, and secretaries, will be reduced and that the services of one special engineer will be dispensed with

It is estimated that 15,000 francs additional can be saved and the Belgian Syndicate has agreed to the reduction. The staffs as compared with the number employed at the end of last year will show a reduction of 26 foreigners and 23 Chinese thereby saving the sum of Tls. 52,000 annually

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THE KAIFENGFU-SUCHOW-HAICHOW RAILWAY.—A memorial was presented to the Throne on March 8th by the Board of Communications asking Imperial sanction for the construction of a railway connecting Kaifengfu, in Honan, and Haichow, a seaport on the Northern Coast of Kiangsu. According to the memorial the Chinese Government has completed the survey and the report of the engineers furnishes many points in favor of an early construction.

Between Kaifeng and Suchow two routes were considered. One reaches Hsuchow via Chenliu, Kihsien, Suichow, Ningling, Kuite, and Tangshan, while the other is via Lanfeng, Kaocheng and Liukow, along the old course of the river Houng-ho to Suchow. The latter

PHILIPPINE MINING NEWS

THE HEADQUARTERS MINING COMPANY.—A ten stamp battery, with tube mill and complete equipment for cyanide plant, is now on the way from the United States and will be installed by the end of January. Mr. E. C. Durell, superintendent for Messrs. Allis Chalmers, Milwaukee, will instal the machinery. The investment represents ₱200,000 and every preparation has been made for the reception of the plant. It is estimated that there is already ₱1,000,000 worth of ore in sight. It might be mentioned that included in the plant is a Ridgeway vacuum filter press to be utilized in treating the slimes. An automobile road has been completed from this property connecting with the Antimok road about one and one-half miles in length.

Mr. Peddigrew, a well known mining expert from San Francisco, has been visiting the Benguet region and looking over the Madison group. He spent two weeks in the vicinity of Baguio and seemed impressed with the prospect for development of the mining deposits of that region.

THE MUYOT MINING COMPANY'S CLAIMS.—Last month, Mr. J. R. Flynn Anderson of the Transvaal Goldfields has endorsed this group as a low grade proposition, but on account of the inexpensive working claims it will pay a very fair profit from present indications. In concluding an interesting review of values and favorable location with a view to further development, he concludes: "As an example of mining in Benguet the Muyot mines are distinctly encouraging both as regards ore bodies and apparent values, and such work as is being accomplished here augurs well for the ultimate future of what promises to be a great mining camp." There are about 75,000 tons of ore in sight and 3500 feet of work has been done.

THE EAST BATAN COAL MINING COMPANY.—The capacity of this company now averages 200 tons a day and the coal sells at Manila in competition with other coals at ₱8.00 a ton. The coal is sold at the mines at ₱6.50 and this price would practically shut out competition were the capacity of the mining plant sufficient to supply the demand. Transportation is one of the local problems in view of the shortage of vessels in the inter-island trade, and as a result the company is filling foreign orders. The main tunnel is about 1,500 feet long and the coal is being extracted at a depth of about 450 feet. The plant is being reinforced by new coal cutting machinery including two radiolax and three punchers which, when installed, will bring the output of the mine up to about 750 tons daily. These machines should be installed by the end of next month. The quality of the coal is improving as greater depth is reached.

ACTIVITY IN NUEVA ECIJA.—Several groups of placer in this district have been tested and proven very satisfactory. Negotiations are under way for the installation of dredges and it is believed that at an early date several large contracts will be concluded which will lead to general development work in that district.

MANCAYAN COPPER REPORT CORRECTED.—The Mining Division of the Bureau of Science has corrected the following statement appearing in page 51, Bulletin 44 of the PhilippineMining Bureau:

"'The lowest tunnel (of the old Mancayan Mine) a regular and large gallery, driven for drainage, has in its present length and in the side drifts, which are under the greater part of the other workings, no sign of ore—in decided contrast to the rich values of a few feet above.'

"This tunnel has since been cleaned out and extended and there is ore to be seen in many parts of it now, though apparently not so rich as in the upper workings. One very rich pocket can be seen which was formerly under water."

NEW MACHINERY FOR THE SAN MAURICIO.—Classifiers are being added to the plant and an increase in the percentage of values extracted of 16% is expected.

MASBATE DEAL BEING NEGOTIATED.—The Philippine Exploration Company has secured an option on the property of the Syndicate Mining Company's in Masbate. The option provides for development work on the prospect.

PARACALE MINING DISTRICT.—Mr. George Laduc has decided to make extensive development of the Navotas Claims in which he and Mr. George C. Sellner of Manila are interested. The group comprises 13 claims.

Mr. F. B. Morehouse, a mining expert, is now in Paracale in charge of development work on the Gumaus quartz claims, an option on which was recently secured by Mr. A. Heise. The terms of the option require a certain amount of development work by the holder during the next six months.

THE STANLEY DREDGING COMPANY was shut down about two weeks during the month of April for repairs. The total production for the month was 90 ounces valued at ₱3150. During the last sixty days this dredge has been working through a ridge, but is now reported that it will shortly be on rich bottom ground again. The tests show that this ground is very rich and large returns may be expected from the dredge beginning June 1st.

The dredge of the Philippine Gold Dredging Company has been taken over to the Malaguit River and should be in operation by the middle of June.

THE BUA MINING COMPANY.—The returns from this company reported during the month amounted to 331 ounces valued at over ₱10,000. These returns were from the Gomok claim. Superintendent O'Shea was passenger on the Minnesota to the United States where he will enjoy a vacation.

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or northern route runs through a flat country, making the cost of construction less than the former, or southern line. The southern route has the commercial advantage of tapping the flourishing towns in the province and from a political and military point of view is more desirable. It has, therefore, been decided to adopt this line. From Hsuchow there are three proposed routes to Haichow. The first is straight running eastward via Peichow. The second runs in a curve south-east to Hsuchien and then turns north-east to make Haichow. The third is via Hsuchien to Chingkiang, from which place it turns northwards to Haichow. Of these three lines, the first is the shortest and least expensive one, but the construction of the Hsuchow-Chingkiang section having already been awarded the Kiangsu Railway Company, it has been recommended that the third route be adopted.

The cost of construction estimated, and the length of each section are given below.

Kaifeng to Hsuchow, 560 li (185 miles), Tls. 6,700,000;

Hsuchow to Chingkiang (this section to be built by the Kiangsu Railway Company);

Chingkiang to Haichow, 260 li (86 miles), Tls. 3,000,000;

Extension to the beach and harbour improvement at Haichow, Tls. 2,800,000.

With other minor items it is estimated that about Tls. 14,000,000 in all will complete the line which compares favorably with the cost of construction of any of the Chinese railways while the prospect for this road is almost as bright as the Peking-Mukden and the Peking-Hankow in the matter of profits.

The Board of Communications has recommended that in view of the expenditure from the profits of the Peking-Mukden, Peking-Hankow and the Peking-Kalgan for the construction of the Kalgan-Kuihuacheng, Kirin-Changchun, Cheng-Tai, Tai-Cheng, Pien-lo and the Shanghai-Ningpo lines exhausting all available funds from those sources and for the reason that there is a strong sentiment against foreign loans, that the construction be spread over a number of years with such domestic funds as may be made available and that the more important sections receive earliest attention. By this course the Board is endeavoring to avoid undue pressure being brought upon the resources of the Empire.

CONTRACTING NEWS

BIDS OPENED.—Bangkok Waterworks.—4,500 tons cast iron pipes, joints, bolts, etc.

Messrs. Macfarlane, Strang, and Co., of Glasgow (Falck and Beidek), Cast iron pipes £6 17s. 6d., per ton; joint bolts £1 6s. 6d., per 100 kilos; rubber rings £56 per 100 kilos.

Société Anonyme du Pont á Mousson, France, cast iron pipes £6 15s.; joint bolts, £1 18s.; rubber rings, £60.

Société Métallurgique de Périgord, France, cast iron pipes £7 15s. 2d., joint bolts £2 11s. 7d.; rubber rings, £5 13s. 7d.

Messrs. Physsen, of Milhein, Rhenish Prussia, tendered for steel pipes, £17 10s. 5d.; joint bolts, £2 8s. 6d; rubber rings, £55.

Messrs. Stanton Iron Works, England, (Howarth Erskine, Ltd.). The prices of pipes varied from £5 5s. to £6 4s.

Messrs. Mannesmann, Dusseldorf, Germany, tendered for steel pipes and joint bolts, prices ranging from £1 3s. 2d; to £15 10s. 8d. and a total of £884 6s. 11d.; for rubber rings. They also submitted two offers, one of £39,445 11s. 1d.; for the work complete, and one of £34,112-17-3 for pipes and joint bolts alone.

CONTRACT AWARDED—SHANGHAI MUNICIPALITY.—Installation of Water Service Sinza Fire Station.—The Shanghai Waterworks Co., Ltd., Tls. 2,170. The other bidders were: The Vulcan Iron Works Ltd., Tls. 3,120, and Messrs. Gordon & Co., Tls. 2,190.—Installation Electric Light and Bells at Sinza Fire Station.—Messrs. E. E. Porter & Co., Ltd., $770. The other bidders were Messrs. Jardine Matheson & Co., Ltd., $830, and the Shanghai Electric & Asbestos Co., Ltd., Tls. 610.91.

BIDS OPENED AT SEATTLE.—U. S. Quartermaster's Department, 400,000 feet of Lumber. —W. R. Grace and Co., delivery Port Blakeley $32,201.43, delivery Manila $51,035,29; Tacoma Mill Company, delivery Manila, $29,072.40; Wilson Brothers of Aberdeen, delivery Manila $54,309.23; Balfour, Guthrie and Co., delivery Manila, $46,739.52; Pacific Export Lumber Co., of Portland, delivery Portland, $20,816, delivery Manila, $48,451; Charles Nelson Lumber Company of San Francisco, delivery Puget Sound, $33,163.64; J. Ernest Laidlaw, of Portland, delivery Portland, $29,816.13, delivery Manila, $48,948.15.

The figures submitted by various firms for transporting the lumber from the Sound or Columbia river to Manila runs from $7 to $9 a thousand as follows: $7 to $9 a thousand as follows: Guthrie, $7; Pacific Export, $7.51; Laidlaw, $7.50."

CONTRACT AWARDED.—Philippine Bureau of Public Works.—Filling in General Hospital Grounds.—H. Thurber was only bidder, price ₱13,000.

BIDS OPENED.—Philippine Bureau of Public Works.—Buliding Addition to Ayuntamiento, Manila.—E. Martin, ₱29,000; M. B. Zarate, ₱28,855; Manila Saw Mill, ₱28,990; Delmar Smith, ₱19,290; John Gordon, ₱29,800; Manila Construction Company, ₱23,750; R. M. Loper; ₱28,740, and M. X. L. Weinberger, ₱22,370.

BIDS OPENED.—U. S. Quartermaster Department Manila 65,000 Tons of Coal.

Mitsui Bussan Kaisha for lump coal and washed nut, both Miike shipside Manila $4.47, Iloilo, Cebu ex ship $5.15, all other $5.47. Piled on shore Manila $4.75, Iloilo, Cebu 5.97 All other 6.37. Macondray & Co., Newcastle Walsend, all ports ex ship $5.07, Manila piled $6.07. Stevenson & Co., West Walsend, Australian, Manila ex ship $5,00, Iloilo, Cebu, $5.225, all other ports $5.475. Piled Manila $5,18, Iloilo, Cebu $6.03. Figueas F. T. Scott, Fell & Co. Australian Coal, Mt. Kemtly, Mt. Peasant, Corrimal Balgownie Osborne Wallsend, Manila ex ship $5.60, Piled Manila $5.80, other ports add $1.30. Ker & Co. Australian Coal, Mt. Kemtly, West Wallsend, Mt. Pleasant. Manila ex ship $5,275. All other ports $5.775, Manila piled $5.50. All other ports $6.05. Smith Bell Co., Australian Coal, Seaham, Manila ex ship $4.99, Iloilo, Cebu, $5.25, $5.24, other ports $5.48, Manila piled $5.19, Iloilo piled $6.04, Cebu piled $6.05. All other ports plied $6.58.

FAR EASTERN ENGINEERING, CONSTRUCTION, FINANCIAL AND COMMERCIAL NEWS

CONTRACT AWARDED.—U. S. Quartermaster, Manila.—Construction reinforced concrete post exchange.—M. E. Martin, ₱44,600; the other bidders were: H. Thurber, ₱70,575; M. C. Wineberger, ₱71,250 and Delmar W. Smith, ₱67,438.

BIDS INVITED.—Philippine Bureau of Supply. —40,000 tons of coal.—Bids opened June 25.

ADVANCE INFORMATION.—U. S. Naval Station, Philippine Island. Tenders will be invited in about four months. Approximately 600,000 feet Oregon pine, catalogue "E" Pacific Coast Lumber Manufacturers' Association, as follows:

200,000-Ft., 12"x12", one half 31' to 40', one half 41' to 50' lengths.
50,000-Ft., 8" x8" 16' to 32' lengths.
20,000-Ft., 6"x 6", 16' to 32' lengths.
25,000-Ft., 4"x12", 31' to 40' lengths.
75,000-Ft., 3"x12", 31' to 40' lengths.
50,000-Ft., 2"x12", one half 16' to 32', one half 33' to 40' lengths.
25,000-Ft., 2"x10", one half 16' to 32', one half 33' to 40' lengths.
25,000-Ft., 2"x 8", 16' to 32' lengths.
100,000-Ft., 1"x12", 16' to 32' lengths.

PROPOSALS FOR MINERAL OIL.—Chief Quartermaster, Philippines.—Opened June 1st, 365,000 gallons.

PROPOSALS FOR SUPPLYING PORTLAND CEMENT.—Municipality of Shanghai—Bids Opened July 2, 1910.

PROPOSALS FOR SUPPLYING FRESH BEEF.—U. S. Naval Station, Philippines.—1,500,000 pounds frozen beef and 100,000 pounds frozen mutton.—Bids Opened June 13.

THE FUKIEN RAILWAY COMPANY, AMOY, is prepared to receive bids for the construction of a reinforced concrete railway bridge of seven arches across the North River about 20 miles from Amoy. The cost is estimated at about ₱450,000.

PROPOSALS FOR TWIN SCREW HARBOR BOAT.—Headquarters Philippines Division, Office of Chief Quartermaster, Manila, P. I., April 20th 1910. Sealed proposals, in triplicate, subject to usual conditions, for the construction and delivery to this Department, complete and ready for service, of one Twin Screw Harbor Boat, will be received here until 11:00 a. m., June 10th, 1910, and then publicly opened. Plans, Specifications and other information furnished upon application. F. G. Hodgson, Deputy Quartermaster General, U. S. Army, Chief Quartermaster.

HEADQUARTERS PHILIPPINES DIVISION: Office of Chief Quartermaster, Manila, P. I., April 22nd 1910. Sealed proposals in triplicate, subject to the usual conditions, for furnishing machinery to the Quartermaster Department, will be received here until 11:00 A. M. June 15th, 1910, and then publicly opened. Blank forms and information furnished upon application. F. G. Hodgson, Deputy Quartermaster General, U. S. Army, Chief Quartermaster.

ELECTRIC RAILWAYS, LIGHT, POWER, TELEGRAPHS, TELEPHONES, AIRSHIPS, AUTOMOBILES, ETC.

TELEGRAPH CONNECTION FOR THE PARACALE. MINING DISTRICT.—The sum of ₱2,800 has been allotted by the Philippine Government for the construction of a telegraph line connecting Daet, Camarines, and the Paracale district. This installation will prove a great convenience to the mining men in this promising district.

PENANG ELECTRICAL SUPPLY.—The report submitted for the year 1909 shows the net receipts to be $46,078, an increase of $20,000 over the previous year. The tramways show a profit of $5,116 notwithstanding a loss through interference by floods of $9,000. It is also $2,000 better than the previous term.

DAIREN WHARVES ELECTRICAL EQUIPMENT.—Electrically driven cranes will be installed in all the principal warehouses to be used in facilitating the loading and unloading of cargo.

THE SIAMESE TRAMWAY COMPANY, LTD.—The following is the statement of accounts for the year ended December 31st:

The gross receipts for the year were		Tcs. 411,704.07
and Working Expenses........		" 279,027.37
Leaving a gross profit of......Tcs.		132,676.70
From which is to be deducted		
Interest........Tcs.	69,466.89	
Bad debts......Tcs.	330.13	
Depreciation...Tcs.	61,600.00	Tcs. 131,397.02
Leaving a Balance of..........Tcs.		1,279.68

which it is proposed to carry to next year's account.

In their report, the directors state that the year 1909 has practically been a repetition of 1908. As for expenses a considerable part has again been spent in improvements; cars and lines, especially the overhead part, are now in much better condition than 3 years ago; and we still have the hope that the first year of prosperity in Bangkok will enable us to pay a fair dividend.

By special resolution gradual conversion of our 8% debentures to 6½% has been decided upon, and the first redemption of Tcs. 125,000 will take place May 1.

HYDRO-ELECTRIC GENERATION.—The Japanese Government has decided to expend the sum of yen 1,500,000 in five consecutive years in an investigation of the adaptability of the different water courses throughout the empire for the generation of electric current. An office is to be established in Tokyo with the Vice-Minister of Communications in charge and the Director of the Electricity Bureau as his assistant. Seven branch offices will be established at Nagoya, Osaka, Hiroshima, Supporo, Sendai and Kumamota. In addition there will be thirteen sub-branches so divided as to cover all the areas where research may be considered of general benefit. The purpose of this organized investigation on the part of the government is mainly to conserve the natural water power locations and to make recommendations as to the application of this force in the development of different industries now lagging in different sections of the country.

HONGKONG WIRELESS ORDINANCE.—The following regulations have been issued by H. E. The Governor of Hongkong by authority of the recent Wireless Ordinance:

"All apparatus for wireless telegraphy on board a merchant ship in the territorial waters of the Colony shall be worked in such a way as not to interfere with (*a*) Naval signalling, or (*b*) the working of any wireless telegraph station lawfully established, installed, or worked in the Colony or the territorial waters thereof, and in particular the said apparatus shall be so worked as not to interrupt or interfere with the transmission of any messages between wireless telegraph stations established as aforesaid on land and wireless telegraph stations established on ships at sea.

"No apparatus for wireless telegraphy on board a merchant ship shall be worked or used whilst such ship is in any of the harbours of the Colony except with the special or general permission in writing of the Postmaster-General of the Colony.

"If at any time in the opinion of the Governor an emergency has arisen in which it is expedient for the public service that His Majesty's Government should have control over the transmission of messages by wireless telegraphy, the use of wireless telegraphy on board merchant ships whilst in the territorial waters shall be subject to such further rules as may be made by the Governor from time to time, and such rules may prohibit or regulate such use in all cases or in such cases as may be deemed desirable.

"These regulations shall not apply to the use of wireless telegraphy for the purpose of making or answering signals of distress.

THE HONGKONG ELECTRIC COMPANY, LTD.—The following information in regard to last year's working has been gathered from the report presented by the chairman at the last meeting of the company:

"The balance at credit of Working Account amounts to $169,595.48, as compared with $152,381.49, the balance resulting from the previous year's working. This increase has been obtained both by increased economy, due to the satisfactory working of the Diesel plant installed in 1908, and, what is more satisfactory, by an increased output of electricity, notwithstanding the falling-off in many of our consumers' accounts, due to the introduction of the more efficient Metallic Filament Lamp. The fall of revenue, due to wider extended use of the more efficient lamp, is likely to continue, especially as the price of these lamps becomes reduced, but we hope that as in the past the net result will be that our output will continue to be increased by fresh consumers attracted by the efficiency and economy of electric lighting. The sum standing at the credit of Profit and Loss Account amounts to $174,790.96. After deducting Director's Fees ($3,000) the sum of $171,790.96 remains available for appropriation, which your direc-

BRICKWORKS MANAGER—An expert Brickworks Manager, at present holding position as Manager of Large Brick, Tile, and Pipe works in the East, will shortly be disengaged on the expiration of a large contract at present in hand, and will then be prepared to consider offers for a similar appointment with some firm of standing or to advise upon and draw up full working plans of plant and works for the manufacture of Brick, Tiles, Terra cotta, Earthenware, Glazed goods and all kinds of Cremonic work.

Excellent testimonials from leading firms both in England and in the East.

CORRESPOND WITH SHANGHAI OFFICE

Far Eastern Review

13 NANKING ROAD

tors propose to deal with as follows:—To pay a dividend of 12 per cent., say, $1.20 per share, on 60,000 shares, $72,000.00; to pay a bonus of 1 per cent., say, 10 cents per share on 60,000 shares, $6,000.00; to write off Plant Account for depreciation, $72,065.65; to write off Property account for depreciation, $5,000.00; to write off furniture Account for depreciation, $477.00; to pay a bonus to the staff, $4,450.05; and carry forward to next account, $11,798.26, making a total of $171,790.96. This proposal, I trust, will receive your sanction and approval, following, as it does, the past policy of your Board, in writing off for depreciation of plant and property at least an equal amount to that paid in dividends. To the adoption of this policy, the present position of the Company may largely be attributed. The very success of the Diesel plant renders it most necessary to clear off from our books the value of the steam plant, which was previously in use, but is now practically only a stand-by in case of an unforeseen breakdown of the Diesel engines. Two of the older steam sets that were no longer of service to us have been disposed of at modest prices, such as indicate the necessity for a continuation of a rigorous policy of writing down our assets. The station buildings have, to a certain extent, been further remodelled during the year and a third Diesel set is now in process of erection on the site formerly occupied by the steam sets before mentioned. The cost of this Diesel set has yet to be debited to our Capital Account, but we trust that the further economies resulting from its working will fully justify the somewhat large outlay we shall shortly have to make. During the year an amount of about $45,000.00 has been spent in extending our system of underground mains throughout the Chinese part of the city and a portion of the central district. This expenditure has been incurred in displacing large portions of our old overhead system, and, whilst it can hardly be expected to bring us immediately any large increase in revenue, we trust that by the provision of a more efficient and certain service, it will be the means of attracting further consumers in these districts. The extension of our underground distribution to the West Point District in 1909 has resulted in the addition of a number of new consumers amongst the Chinese and already may be said to have justified the outlay on that extension."

Yokohama Electric Joint Stock Company.—This company has issued a prospectus dealing with a proposed project for the diverting of hydro-electric power generated at Koyama and Tonosawa to Kodzu so as to supply the Yokohama Electric Railway and the Fuji Gassed Spinning Company with power. A contract with the Tokyo Electric Light Company for any surplus is also proposed.

Swatow-Haiching Motor Service.—It is reported in the native press that a company with a capital of $200,000 has been organized for the purpose of installing a motor car service between these two points. The distance is about four miles.

Philippine Wireless Service.—The following gentlemen have been appointed members of a board to consider plans for the installation of an effective wireless telegraph service throughout every section of the islands, viz: The Hon. Charles D. Elliott, Secretary of Commerce and Police, Colonel George P. Scriven, U. S. A., and Commander C. M. Keppner, U. S. Navy.

Penang Electric Railway Extension.—The sum of $15,000 has been appropriated by the Municipal Commissioners for the extension of the line from Penang Road terminus along Chulia Street to Penang Street.

Electric Lifts for Astor House Hotel.—Messrs. Brighten Malcolm & Co. have secured the contract for the installation of electric elevators in the Astor Hotel extensions.

Dairen Electric Light.—The second boiler has been installed in the power house, and with this additional equipment the service has been greatly extended.

The Philippine Telephone and Telegraph Company.—This company has been busy laying its wires underground and it is expected by the end of the year that there will not be an overhead wire owned by this company within the city limits. In addition to this the company is considering the establishment of a long distance service connecting Baguio and all the towns in Northern Luzon with Manila.

The Yokohama Electric Railway Company.—This company has applied for a concession to construct a railway between Yokohama and Dzushi by way of Hagoromocho, Hisikatacho, through Kanagawa.

Manila Electric Lighting System.—The city electrician has recommended a readjustment of the street lighting and the introduction of the series Tungsten lights. Under the new distribution it is proposed to instal 199 series Tungsten and 11 arc lights. The arc lights are being installed and the Tungsten will follow as soon as arrangements can be made with the electric light company.

Readjustment of Shanghai Electric Tramway Fares.—The general manager of this company has increased the number of fares points on the four different routes from 32 to 47 and also made a corresponding reduction of fares in the different classes. A previous doubling of fare points and a reduction of fare resulted in such an increase of Chinese traffic that it was decided to make the use of the cars more attractive and inexpensive to this class by the addition readjustment along those lines.

PUBLIC WORKS, WHARVES, DOCKS, BUILDINGS, ETC.

Irrigation in Siam.—A feature of the Bangkok Industrial Exhibition was the pavilion of the Royal Irrigation Department in which were exhibited a model of the big proposed moveable weir at Muang Charinat to cost Ticals 6,000,000 and a model of an aqueduct syphon which will carry the canal across the Pasak River at a cost of Ticals 982,000. According to the *Bangkok Times* the total cost of the irrigation and drainage scheme proposed by Mr. Van der Herde would cost, when completed, about Ticals 47,000,000, while the estimated cost of a scheme of reduced capacity for the Southern Menam Valley is Ticals 23,165,000.

Philippine Public Works.—The insular appropriations for this bureau for the year 1910 amount to approximately ₱2,300,000 and include for permanent roads and bridges ₱1,500,000; for specific inter-provincial roads ₱300,000; for drilling artesian wells and pumping plants where necessary, ₱300,000, for construction of new buildings and equipment for the Philippine Normal School, ₱200,000; for improvement and preservation of Magallanes Monument ₱5,000; for construction of contagious ward at San Lazaro, ₱40,000; for addition to the Ayuntamiento Building, ₱20,630.

Ryojun Drydock.—This dock now being constructed by the Japanese Government is 200 feet in length and will be utilized for the repair of destroyers, torpedo boats and small fighting craft.

Swatow Waterworks.—Messrs. Leigh & Orange of Hongkong have been appointed consulting engineers in connection with the installation of a system of water supply for Swatow which when completed will cost in the vicinity of $500,000. This does not include the water tower.

Philippine Insular Ice Plant Reconstruction.—A recommendation has been made by Major Shields, Director of the Bureau of Supply, to have the insular ice plant building reconstructed of reinforced cement throughout. When the plant was being built the only lumber available was Oregon pine and the dampness has had the effect of rotting the lumber wherever it has been used in the construction.

Breakwaters at Dairen.—The work on the East Breakwater is progressing favorably. It is 1,220 feet in length and will be completed this year. The North Breakwater 2,850 feet in length is also being built and is expected completed by the end of 1912.

Barracks at Kowloon.—Half the buildings with a capacity for housing a battalion of soldiers have been completed and are now occupied by Indian troops. When completed the group will cost approximately $150,000.

Dredging Rivers Near Tientsin and Peking.—Advices have been received that the merchants of Tientsin and Peking have recommended the raising of a fund of Tls. 1,000,000 to be used in improving water transportation facilities.

Tokyo Skyscraper.—The Mitsui firm is contemplating the construction of a six storey building in Tokyo near the Mitsui Bank building. The estimated cost is placed at 430,000 yen and it will be constructed on lines similar to plans used in the reconstruction of San Francisco in order to provide against destruction from earthquakes.

Public Buildings at Peking.—The program for construction at Peking for schools and universities includes the expenditure of about Tls 3,000,000.

Penang Public Incinerator.—A new Heenan Refuse Destructor having a capacity of 40 tons daily has been successfully installed at Penang.

Hongkong Water Supply.—The report under date of April 1 shows that there were 280,876,000 gallons in the hill and city reservoirs as against 280,754,000 on the corresponding date last year while there were 191,500,000 gallons in storage at Kowloon as compared with 129,367,000 last year.

Irrigation for Moroland.—The Provincial Board has petitioned the Insular Government for an appropriation of ₱75,000 for the repair and construction of dams throughout the Moro province. It is believed that the nucleus of a system could be established that would grow into a most important feature in the development of agriculture in that territory.

Irrigation in Hainan.—A correspondent of the *N. C. Daily News*, writing from Loklo, states that the town of Loklo in the southwestern section of Hainan owes its prosperity to an irrigation ditch that taps a river some five or six miles back in the hills dug some ten or twelve generations ago. It makes two crops possible and the area served requires 10,000 days' work in rice planting. The water from the irrigating canal is raised to the fields by means of water wheels, buckets swung between two people or by long spoon-like scoops hung from a tripod and operated by one workman. The higher the water, the easier the work of the Loklo farmer.

Tokyo-Yokohama Canal.—Several plans have been submitted for providing means of water transportation between these two points. One is to construct a canal from Kanagawa to Tokyo either by way of Haneda Point or by cutting through it; another scheme is to cut a canal from the Tsurima River to the mouth of the Sumida and proceeding by way of the beach at Oniori. Another scheme is to deepen the harbor of Tokyo and have the steamers enter there.

Tanjong Pagar Dock Board.—The report of the Board for the half year ended December 31st contains the information that work on the blockwork wall of the Main Wharf reconstruction at the western end has progressed during the half-year, the actual wall being completed in October, when the staging was removed, and filling operations at the rear for roads, railways, and godown sites put in hand.

The cylinder construction portion of the new wharf at this section has been proceeded with, though only slow progress has been made, which, however, it is hoped, will be improved on the arrival of heavier plant and appliances being provided. Twelve cylinders have been sunk and superstructure completed and the staging is in hand for a further 160 feet.

In September an additional length of 150 feet of old wharf eastward of the first portion was handed over to the Contractors.

The certificates for work done during the six months amount to £113,800, being an aggregate from commencement up to 31st December last of £249,299.

On the Keppel Harbor New Dock £38,500 have been spent, which is considered very satisfactory.

Bridge on Road to Tibet.—The importance of a bridge in the district of Chungtu on the road to Tibet has resulted in the letting of a contract to a German firm for the erection of an iron structure to cost Tls. 30,000.

The Hongkong University.—The cost of this building, according, to the terms of the contract with a Hongkong contractor, will amount to about $300,000.

New Method of Driving Piles.—The *Scientific American* describes a method of driving piles without the usual pile driver. For this purpose the piles, which may be from 20 to 36 feet long and from 10 to 12 inches in diameter, are pointed at one end, where also a screw thread is cut. These threads are from 3 to 3½ inches apart, and from 2 to 2½ deep. A pole or sweep lever is bound to the pile with a log chain. To drive the pile a horse is harnessed to the other end of the pole, and led round and round until the pile is driven to the required depth. It is found to be quite easy to drive large piles through clay or gravel in this way. They may be also driven through ice. By reversing the direction of the horse's motion a pile can also be removed.

Philippine Port Improvement.—The legislature has appropriated the sum of ₱700,000 to be utilized by the Bureau of Navigation for the improvement of ports, dredging of navigable rivers and canals, opening of new canals, construction of breakwaters, sea walls, dams and containing walls for the prevention of inundations, and the taking of soundings and preliminary surveys for such purposes, including the continuation of the construction of the sea wall in the port of Cebu, and for the improvement of the port of Iloilo.

SHIPBUILDING, MERCHANT MARINE, FISHERIES

The Shanghai Tug and Lighter Co., Ltd.—The directors' report shows a credit balance of working account transferred to profit and loss of Tls. 122,314.44 as against Tls. 112,001.09 for the previous year. A resolution was also adopted at the regular meeting reducing the capital of this company from Tls. 1,500,000, divided into 10,000 shares of Tls. 50 each and 20,000 ordinary shares of Tls. 50 each, to a capital of Tls. 1,000,000 divided into 10,000 preference shares of Tls. 50 each and 20,000 ordinary shares at Tls. 25 each.

The Compania Maritima —At its last annual meeting this company reduced its capital from ₱1,200,000 to ₱510,000.

Motor House Boats of the Asiatic Petroleum Co.—Two vessels, one for Saigon for duty on the Mekong River, and the other for inspection work at Hankow, were recently built for the company by a Chinese boat builder at Shanghai. One of them is 61 feet over all; beam 12.5 feet and draught 2.5 feet and is driven by two Kelvin 15-20 h. p. kerosene motors making eight knots. The dimensions of the second are: length overall 42 feet 3 in., beam 8 ft. 6 in. and draught 22 in. She is driven by one Kelvin 15-20 h. p. kerosene motor and makes about 6.5 knots.

Canadian Pacific Earnings.—Including the Trans-Pacific and Trans-Atlantic Steamship Services the gross earnings for the six months ended December 31st amounted to $49,925,511; expenditure, $29,855,635, leaving a net profit on working of $20,069,876, an increase of $6,028,689 over previous term.

The Bangkok Dock Company Workings.—The total number of vessels docked for 1909 was 67 against 64 for the previous year, and the tonnage of vessels amounted to 31,128 against 30,909 for 1908.

The North German Lloyd S. S. Company.—The annual report of the North German Lloyd Steamship Co. shows gross profits of 32,899,000 marks ($8,224,750), as compared with 9,218,000 marks ($2,304,500) for the previous year, but no dividend. A total of 20,033,000 marks was written off against vessels and other property, as compared with 14,027,000 marks of the previous year.

Japanese Far Eastern Services.—It is announced that two steamers of the Nippon Yusen Kaisha engaged in the Saghalien service will receive a subsidy of yen 50,000 while two vessels of the Osaka Shosen Kaisha on the Vladivostok run will receive yen 250,000.

U. S. A. Transport Warren.—The Transport Warren, which has been undergoing repairs at The Shanghai Dock and Engineering Company, proceeded from Shanghai last month to Haiphong where she loaded with cement for the Quartermaster's department, Manila.

The New White Star Liners.—It is announced that the two 45,000 ton vessels being built by Messrs. Harland & Wolff will be launched this fall.

Tsuruga-Vladivostock Service.—A new timetable has been prepared in connection with the trans-Siberian Railway and the steamer service from Vladivostock and Tsuruga. Connections will be made by the steamers on Saturdays and Thursdays.

Mitsu Bishi Builds Monster Destroyer.—The new destroyer Yamakaze, a sister ship to the Umikaze now being built at Maizuru, will have a displacement of 1,150 tons, be equipped with 25,000 h. p. and have a speed of 33 knots. It is being built at the Mitsu Bishi Dockyards.

Disappearance of the American Merchant Flag.—Consul Du Bois of Singapore in reviewing the decadence of the American Merchant Marine in Far Eastern waters points to the fact that four years ago the American ship Acme called at Singapore in ballast for repairs; three years ago the American ship Ivy called with a cargo of salt and cleared with lumber; two years ago the foreign built Hanamet arrived, and last year the barkentine Jos. L. Eviston called in ballast and was sold. In 1856 there were 1,047 ships including native craft entered at Singapore, of which 667 were British, 182 Dutch and 45 good sized American Merchantmen. The total number of vessels entered last year in 1908 was 29,234 with a tonnage of 15,507,102 of which only one small craft of 662 tons was under the American flag.

Asiatic Russia Fisheries.—The catch in the Arctic Ocean along the Siberian coast amounts to 40,860,000 pounds, worth $1,815,225. The yield of the Amur district reaches 80,280,000 pounds, valued at $1,442,000. These figures do not include the several million pounds of fish consumed by the local population and their dogs.

In the Aral Sea species of sturgeon and carp are caught, the yield being nearly 25,920,000 pounds worth about $515,000. The Akmolinsk, Semipalatinsk, and Semiretchensk districts yield about 9,000,000 pounds, valued at $226,600.

The total yearly catch of fish marketed in Asiatic Russia aggregates about 156,060,000 pounds, worth nearly $3,998,825. The catch in Asiatic Russia increases in proportion with the population growth and development of fishing in Siberia, following the construction of the Siberian railway, which opened up new markets in European Russia for the valuable Siberian fish. A decrease in the yield is only noticed in Lake Baikal, where the catch of salmon is diminishing, and in the Aral Sea, where the catch of sturgeon is falling off, the latter due to the shallowing of the mouth of the Amu-Daria River.

The New Haiphong-Hongkong Service.—It is understood that the East Asiatic Company proposes putting on a steamer of 1,300 tons with a speed of 13 knots at the outset. The new contract will be signed June 1st.

Shipside Delivery of Bulk Cargo at Manila.—The Collector of Customs has issued an order providing for ship side deliveries to be given only to large shipments consigned to the U. S. Army or Navy and to large consignments of cargo so stowed as to not interfere with the rapid discharge of the vessel. The following is held to be bulk cargo: coal, rice, lumber, cement, fresh fruits and vegetables, fresh meat in cold storage, flour or grain in sacks, hay and straw in bales, heavy machinery, boilers, railway iron, structural iron and steel, lubricating oil in barrels, and shall constitute an amount equal to one casco or lighter load.

MINES, MINERALS AND THE METAL TRADE

Iron and Steel for Philippine Sugar States.—The Mindoro Sugar Development Company has received over 800 tons of material for the installation of a system of transportation on its big estate in Mindoro for carrying the sugar to the docks and cane to the mills.

Burma Mines, Ltd.—The report for March shows a saving of 975 tons of lead and 4,795 ounces of silver.

Modern Shoe Making Machinery.—The Hike Shoe Company has installed in its repair department, Manila, a new machine that will do the work of 30 men. It will turn out 300 pairs of new shoes daily and put new soles on 500 pairs of old shoes in that time. It cost ₱10,000.

Royal Johore Tin Mining Company.—The report for the year shows an output of 1,307 pikuls.

F. M. S. Tin Exports.—The total export of tin for March was 48,718 pikuls as against 61,100 pikuls for the corresponding month 1909. The total export to date for 1910 amounts to 178,870 pikuls against 181,064 pikuls, 1909.

Oil in Siam.—Kerosene oil has been discovered near Khota Bharu and a prospecting license has been applied for.

Gold Near Nikko.—A permit for prospecting mineral land near Nikko has been granted as a result of the discovery of rich ore containing gold and silver.

The Raub Gold Mine.—This company has declared a dividend of 1s. 2d. which will be applied as a payment of shares.

The Iwaki Coal Mines.—As a result of the decision of the Japanese Railway Board to use Kyushu and Hokkiado coal on its lines instead of the coal from the Iwaki coal fields quite a panic has resulted among the collieries. These fields heretofore produced about 450,000 tons annually. One colliery has closed down and others are reducing their working forces.

Coal Prospect in Oshu.—A company has been formed by Japanese capitalists to develop a prospect of coal located at Mogami in a district where heretofore they had to import the product from outside.

The Kinta Tin Mines.—This company has declared a further dividend of 5%.

Opening of Ulu Kanching Tin Mine.—The *Malay Mail* announces the opening of the new hydraulic plant of Messrs. W. Crompton and Foo Bow Teck at Ulu Kanching situated about 12 miles from Kuala Lumpur on May 4th. The concession comprises 40 acres and the fall of water is 180 feet. The incident of the day was the successful starting of the monitor. Another monitor will be installed at an early date.

The Chinese Engineering & Mining Company, Ltd.—The directors have announced an interim dividend of 1s. 6d. a share which is equal to 15% per annum.

Labuan Collieries.—The present output of these mines is 10,000 tons a month as a result of the increase made in plant and equipment during 1909. Two electrically driven turbine pumps were installed, each having a capacity of 700 gallons per minute and a steam driven pump with a capacity of 600 gallons per minute. Large water, steam, and compressed air pipes have been installed in the inclines. One 750 h. p. steam turbine and generator to supply the electrical power for pumping, lighting, fans, etc., is in operation. Three new Lancashire boilers are installed. The mine workers have been accommodated by the construction of 250 houses and the railway equipment has been increased by 100 new cars and a locomotive. Provision has also been made for the facilitating of the transfer of the coal to boats alongside direct from the cars.

Deep Mining in Perak.—The *Perak Pioneer* states that Mr. C. E. Peterson has purchased a No. 1 Keystone Driller from the Keystone Driller Company of Beaver Falls, Pa., to be used in prospecting a concession near Kamunting. This machine bores to a depth of 250 feet and as the *Pioneer* remarks is the first time any deep boring has been undertaken in that district. If the first tests meet with success, a larger machine capable of deeper bores will be ordered.

Korean Mining Activity.—The Chief Expert of the Mining Bureau states that since the promulgation of the mining law last year many applications for concessions were received from Japanese, but recently many Koreans, among them members of the nobility, had made applications for permission to work alluvial deposits of gold.

The Muroran Steel Foundry.—This joint project in which British and Japanese capitalists are interested and which has for its object the manufacture of railway supplies together with ordnance for the army and navy is expected to open in August this year. The plans include two machine shops, a pattern shop, a foundry, forging shop, tempering and shrinking shop, a blacksmith and repair shop, a laboratory and test room and offices. Manganese ore is said to be obtainable near the foundry and experiments have been conducted with a view to utilizing iron sand deposited along the shores of Volcano Bay.

The Malay Prospecting Syndicate.—This company has been formed with a capital of £10,000 for the purpose of engaging in the business of tin and general miners, prospectors, concessionaires, etc.

The Pahang Consolidated Company, Ltd.—The report by Mr. William Frecheville on these mines, with recommendation to raise the sum of £70,000 to be added to working capital and that the work of exploration should be pressed rapidly, boldly and with judgment, was recently submitted to the board of directors. The following are excerpts from his report:

"The mines are well equipped with a 50-stamp concentrating mill, with a great variety of plant and machinery necessary for carrying on the business of the company, with suitable houses for staff and labour, with a narrow-gauge railway, 12 miles long, to the head of navigation on the river, and a stern-wheel steamer for service on the 25 miles of river separating the head of navigation from the port of Quantan. With this fine equipment, which has cost the company upwards of £200,000 and several years of effort to bring into being, they unfortunately do not find themselves in the position of being able to make profits, owing to the lowness of grade of the ore supplied by the two mines now worked, Willink's and Bell's.

"As regards the amount of further working capital which should be raised, I have gone carefully into figures and made a number of estimates, and have come to the conclusion that the sum of £70,000 is a suitable one under the circumstances. I have in my mind that £45,000 should be set aside for mining work and £25,000 for contingencies and possible monthly losses on working account. Of the remaining £15,000, I recommend that £6,000 be expended in endeavoring to find a continuation of Bell's ore bodies, and in sinking Nicholson's Shaft another 100 ft., to have another look at Willink's lode. If funds permit at any time, either through the abandonment of Willink's, or from profits earned in the mill, then I recommend that Jeram Batang Mine be taken in hand and reopened. The cost of doing this would amount to about £15,000.

"A great variety of old plant exists on the ground, which can be utilised for equipment, but if favourable results are obtained in carrying out the programme of work as soon as success is apparent, I recommend that an electrical power plant be installed at a cost of about £20,000. Such a power plant, using fuel oil in Diesel engines (such as are now used in the mill), would get over the firewood difficulty, and would probably pay for itself by the economies effected, in three or four years.

"The additional machinery for the mill, consisting of 4 pneumatic stamps and a 200-h. p. Diesel engine, are on the ground, but not erected. They are expected to bring the crushing capacity on mixed ores up to from 10,000 to 12,000 tons per month. At present, there is not sufficient ore available, or in prospect, to justify their erection, but should the position change in this respect, these additions could be erected in about four months at a cost of about £5,000."

FINANCIAL, COMMERCIAL AND MISCELLANEOUS

Company to Manufacture Paper from Bamboo.—A company to be known as the Tonkin Pulp and Paper Co., Ltd., with a capital of $660,000 (Haiphong Cur)., has been organized by Hongkong and Indo-China capitalists for the purpose of establishing a factory and manufacturing paper from bamboo pulp. A concession of forty-three square miles of territory in Tonkin has been acquired and it is understood is capable of furnishing 50,000 tons annually.

Yokohama Specie Bank in Manchuria.—This institution is prepared to advance loans to traders secured by real estate at a low rate of interest at its different branches in Manchuria. Yen 3,000,000 has been made available for this purpose.

The Rio Grande Rubber Estates, Ltd.—This company has been organized in Glasgow, Scotland, with a capital of £70,000, for the purpose of collecting the wild rubber and cultivating para rubber in Mindanao. The company has asked for a concession of 60,000 acres in the Rio Grande Valley, Mindanao, Philippine Islands, covering a period of 20 years C. A. Littler of Manila is the principal promoter of the company. An annual output of wild rubber for the first seven years is estimated at 120,000 pounds with a net profit of £12,000 during the time the para rubber is developing.

Rice Cultivation in Indo-China.—An association has been formed for the purpose of promoting the use of farming machinery in rice cultivation. There are now approximately 1,200,000 acres under cultivation and about 2,000,000 hectares still untouched. It is proposed to send a delegation to Louisiana and Texas to study the modern methods in vogue there with a view to applying them to the problem in Indo-China.

New Rubber Companies.—The organization of new companies continue to interest capital in the rubber growing industry. Among the many recently noted are the Laras (Sumatra) Rubber Estates, capital £90,000, £1 shares; Chembong Pedas Rubber Co., capital $230,000, shares $5 each; Victoria (Malaya) Rubber Estates, capital £120,000, shares 2s. each; Dajan (Java) Rubber Estates, capital £55,000, shares 2s. each; Anglo-Bolivian Rubber Estates, capital not given; Panni Lands & Rubber Estates (Gold Coast), capital £80,000, shares 2s. each; Malayan Rubber, Loan and Agency, capital 600,000, shares £1 each; Alluta Rubber and Produce Co. (Ceylon), United Malaysian Rubber Co., Ltd., Capital, £2,000,000 (British and American capital) £400,000 offered for sale; the Quayuleb Rubber Co. (Mexico), capital £400,000, shares £1 each; Way-Halim (Sumatra) Rubber, capital £120,000, shares 2s. each; Badek Rubber Estate (Java), capital £120,000, shares £1 each.

Sugar Development in the Philippines.—Honolulu capitalists have purchased 20,000 acres of sugar lands near Calamba, Laguna, and propose an investment in all of about ₱3,000,000 in developing these lands. The machinery alone, it is estimated, will cost in the vicinity of ₱600,000. Mr. A. F. Thayer of Honolulu has been acting as representative of the Honolulu people.

Japan's Cocoon Crop.—The total for the spring, summer and autumn of 1909 amounted to 3,625,000 koku (koku=4.96 bushels), an increase of 95,069 koku compared with the corresponding periods the previous year.

Straits Settlements' Forest Reserve.—The legal reservation of forests was authorized in 1909 by the Forest Ordinance and the Government Gazette has announced that it is proposed to reserve in all about 88,604 acres, of which 10,800 acres are in Penang, 3,900 in Wellesley, 23,945 in The Dindings, and 40,900 in Malacca.

The Russo-Asiatic Bank.—The amalgamation of the Russo-Chinese Bank and the Banque du Nord under the name of the Banque Russo-Asiatique has been consummated. Banque du Nord shares were exchanged for stock in the new institution at the rate of five of the former for seven of the latter and three of the new shares will be given for four of the Russo-Chinese shares. The new bank will increase its total capital to Roubles 35,000,000 by the issue of 24,334 new shares.

Antung Banking Institution.—Chinese merchants have organized with a capital of yen 1,000,000 for the purpose of establishing a banking and forwarding business at Antung.

Huge Rubber Dividend.—The Selangor Rubber Company, recently announced an interim dividend of 3s. 3d. making 5s. 9d. for the year 1909. This is equal to 275 per cent. per annum on capital and is probably the highest dividend declared. The Consolidated Malay made a total dividend of 80% and the Linggi 165% for the year. In the six years the Selangor company made a total of 471.5% on a capital of £30,000, the smallest dividend during that time being 20%. The Linggi made a total of 264% during five years with the lowest annual dividend 4% on a capital of £98,324.

The Chefoo Weishien Line.—The prospect for the construction of this proposed line seems brighter since the Viceroy at Tientsin has been advised by the Grand Council that it is the purpose of the Government to abandon the construction of the proposed line from Kaomi to Yichou in favor of a line from Yichou to Weihsien to connect with the Chefoo-Weihsien line and with prospect of early construction of the latter along the plans originally submitted.

South Manchuria Railway Loan.—Baron Goto, Minister of State for Communications explained to the budget committee that the new loan for yen 40,000,000 would be utilized the following improvements:

	Yen.
On the main line	17,200,000
On the Mukden-Antung line	3,200,000
On electric work	1,850,000
On gas work	350,000
On harbors	9,000,000
Mines	200,000
Hotels	900,000
Various enterprises in the railway zones	7,000,000

LIMIT SHIPMENTS OF LOW GRADE PHILIPPINE CIGARS.—The Manila Tobacco Association made a recommendation to the Collector of Internal Revenue to have low grade product limited in export and the latter issued an order announcing three groups, standard first, standard second (medium), and standard third or low grade, and providing that shipments to the United States should not contain less than 35% of the first group, not over 65% of the second group, and not over 15% of the third group. This action was taken to prevent an attempt on the part of importers in the United States flooding the country with cheap cigars to the detriment of the reputation of the Philippine industry.

MODERN ROPE FACTORY IN MANILA.—The Johnson-Pickett Company has installed ₱100,000 worth of machinery in their new factory located on Muelle de la Reina near the Custom House. The machines are the manufacture of the Watson Machine Company, Paterson, N. J., and with the equipment installed this factory can now turn out rope from one-half inch to eight inches in diameter with a length of 3,000 feet for the small size and 200 fathoms for the largest. The daily capacity is eight tons. The business of this company is growing rapidly and especially their export trade.

A FLOATING HUB AUTOMOBILE WHEEL.—A new invention designed as a substitute for the expensive pneumatic tire is to the credit of the genius of H. O. Peck of Portland, Oregon, and will be known as the Peck Floating Hub Automobile Wheel. Two large manufacturers have secured contracts from the inventor for the exclusive manufacture and sale of the invention covering the United States, Canada and Mexico, and the other all foreign countries. The wheel has been tested over about 7,000 miles in the city of Portland and country thereabouts very successfully. The tire used is of hard rubber and the invention gives the car all the grace and ease of motion of the pneumatic tire at a minimum of expense. It will be put on the market at an early date.

MONTOL PHILIPPINE HARDWOOD.—Messrs. Derham Bros., one of the leading lumbering firms of the Philippines, are making a specialty of supplying this wood for high grade construction and finishing timber. The Philippine Railway Company has been using this class of timber for telegraph poles and finds that after four years there is not the least defect noticeable.

BIG OFFER TO PURCHASE GERMINAL CIGAR FACTORY.—A group of capitalists in the United States recently made an offer of ₱3,000,000, or an amount equal to double the capitalization of the company. The offer was refused, but so desirable was the investment that the Americans offered to put in ₱1,000,000 to increase the stock to ₱2,500,000. The latter offer is now under advisement.

PHILIPPINE TREASURY TRANSACTIONS FOR 1909.—The annual report of the Insular Auditor shows that the total transactions during the year involved ₱506,868,201 or an average of ₱1,689,560 daily The exchange currency transactions amounted to ₱151,919,653.

CHANGCHOW SUGAR REFINERY.—A report from Changchow near Amoy is to the effect that a company with a capital of Tls. 10,000,000 has been formed with the purpose of installing a large sugar refinery. There is a report to the effect that the Viceroy has promised sufficient protection so that within five years no competition may be feared. Hongkong and Formosan interests interpret this as a menace to local sugar industry.

PHILIPPINE SUGAR CROP.—The estimates for this year place the output at about 96,000 tons, about 3,000 tons short of previous year. The price prevailing has been almost double that of 1908.

MANILA'S POPULATION.—The total population, according to the Bureau of Health census, is 234,409. Of this number there are Filipinos, 211,959, Chinese 14,093, the former showing a gain of 16,600 and the latter a falling off of 3,934. The European population excluding Spaniards numbered 644 a loss of 333. There were 2,364 Spanish residents which is 639 less than in 1907 when the last census was taken. The American population has dropped from 5,199 to 4,174, a decrease of 1,025.

LONDON, ENGLAND, METAL MARKET

The following are Friday's, April 8, prices of metals:—

COPPER	£ s. d.		£ s. d
*Tough cake and Ingot.	61 10 0	..	62 0 0
*Best Selected	61 10 0	..	62 0 0
*Electrolytic	68 0 0	..	68 10 0
*Sheets and sheathing..	71 0 0	..	—
*Flat bottoms	78 0 0	..	—
STANDARD †Cash	57 11 8	..	—
STANDARD †Three Months	58 12 6	..	—
*Copper tubes, seamless per lb..	0 0 8¼	..	—
*Lake	65 0 0	..	65 10 0

* Less 3½ per cent. † Net.

ALLOYS.			
BRASS: Wire	0 0 6¼	..	—
,, Tubes (solid drawn)	0 0 7	..	—
,, Sheets	0 0 6¼	..	—

TIN.			
English ingots, f. o. b.	149 10 0	..	150 10 0
,, bars	150 10 0	..	151 10 0
,, refined..	151 10 0	..	152 10 0
Straits... Cash	150 10 0	..	—
Straits... Three months	152 10 0	..	—
Australian spot	—	..	—
Banka (in Holland) Cash	151 12 6	..	—
Banka (in Holland) Three months	152 5 0	..	—

LEAD.			
Spanish or soft foreign	12 12 6	..	12 13 9
English pig, common	12 16 0	..	13 0 0
,, L. B.	13 10 0	..	—
,, sheet and bar lead..	14 12 6	..	—
,, pipe	15 2 6	..	—
,, red	16 0 0	..	—
,, white	18 0 0	..	—
,, patent shot	16 0 0	..	—

SPELTER.			
Silesian ordinary brands	22 17 6	..	23 0 0
,, special brands	23 7 6	..	23 10 0
English Swansea	24 0 0	..	24 10 0
Sheet zinc	26 0 0	f.o.b. Stettin.	

ANTIMONY.			
Antimony	28 10 0	..	30 10 0
,, Crude	13 10 0	..	14 0 0
,, Ore (basis 50%)	8 0 0	..	10 0 0

QUICKSILVER.			
Flasks, 75 lbs. warrants	9 5 0	..	—

ALUMINIUM.	Per ton.		Per ton.
98-99 per cent	70 0 0	..	75 0 0

NICKEL.	Per ton.		Per ton.
98-99 per cent. guaranteed	167 10 0	..	171 0 0

PLATINUM.

Per oz. Troy, 115s.; nominal and subject to negotiation.

HEMP STATISTICS, 30th APRIL, 1910.

(Courtesy of C. S. NICHOLSON, *Secretary, Manila Chamber of Commerce.)*

EXPORT OF HEMP, APRIL, 1910.

Date	Vessel	London	L'pool	Atlantic U.S.	Pacific East & California	Continent	Australia	Other Pts.	Total Bales
1910									
April 1	Brt. Forward	51,802	22,887	115,355	33,520	13,044	4,798	9,877	251,193
" 9	Antilochus	21,078	9,300			2,850			33,228
" 19	I. de Panay	500				739			1,239
" 29	Clan McDougall Cebu	6,958	1,020			200			8,178
" "	Dongola	20,528	1,250						28,778
	Indrapura....Cebu			11,600		1,280			11,600
	Verona........Cebu			8,000					8,000
" 23	Hudson			6,225					6,325
" 6	Mongolia				2,000			66	2,066
" 16	Keemun				250				250
" 28	River Clyde				5,499				5,499
" 8	Loongsang					150		160	310
" 9	Seattle Maru							909	909
" "	Nikko Maru							110	110
" "	Rubi					13		103	116
" 12	Taming					780		35	815
" 15	Yuengsang					40		300	340
"	Kaifong ......Cebu					100			100
" 19	Aldenham							630	630
" 18	Yawata Maru						1439		1,439
" 23	Rubi					7		1160	1,167
" 22	Loongsang							137	137
" "	Taiyuan						200		200
" 26	H. Ibsen							100	100
" 29	Yuengsang							300	300
	Sungkiang...Cebu					100			100
" 19	Tean					550			550
" "	Yuengsang					61		200	216
" "	Coblenz							69	69
" 2	Zafiro							250	250
" 3	Indrawadi			6,816					6816
" 26	Taming							50	50
" 29	Prinz Waldemar					200			200
	Carried forward	100,866	41,457	148,096	41,269	18,834	6,437	14,366	371,325

FAR EASTERN STOCKS AND QUOTATIONS

Courtesy of Messrs. Kadoorie & Co., Hongkong, April 29, 1909.

STOCK.	WHEN ESTAB-LISHED	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	AT WORKING ACCOUNT	DATE	LAST DIVIDEND.	Approximate Yield per cent per annum at Present Quotation	CLOSING QUOTATIONS
BANKS.											
Hongkong & Shanghai Banking Corporation	1865	$15,000,000	120,000	$125	$125	g £1,500,000 e $15,500,000 i $250,000	$2,028,988	31-12-09	£2. 5/- for half year ending 31-12-09, @ ex 1/9½=$25.11	4	975 sellers £91 10/-
National Bank of China, Ld.	1891	£699,475	10) 99,925	£7	£6	e £4,099 $400,000	$34,167	31-12-09	$2 (London 3/6) for 1903	....	$76 buyers
MARINE INSURANCES.											
Canton Insurance Office Ld.	1881	$2,500,000	10,000	$250	$50	$1,560,000 j $254,583 u $302,799	Nil.	31-12-08	$10 for 1908	7	$170 buyers
North China Insurance Co., Ld.	1903	£150,000	10,000	£15	£5	g £125,000 e Tls. 225,000 u Tls. 335,253 f Tls. 146,586	Tls. 207,572	30-6-09	Final of 7/6 making 15/- for 1908.	....	Tls. 115 sellers
Union Ins. Society of Canton, Ld.	1867	$3,100,000	12,400	$250	$100	e $3,000,000 g £90,000 f $287,984 j £1,449,735 u $713,985	$287,984	31-12-09	Final of $20 per share, making in all $50 per share for 1908, and an int. div. of $30 per share for 1909	5½	$850 sal. & sel. ex div.
Yangtsze Ins. Association, Ld.	1889	$1,200,000	12,000	$100	$60	$1,000,000 j $294,405 $199,234	$707,637	31-12-08	$12 and bonus $3 for 1907	7	$225
FIRE INSURANCES.											
China Fire Ins. Co., Ld.	1870	$2,000,000	20,000	$100	$20	$1,000,000 x $550,348 f $61,168	$438,406	31-12-09	$6 and bonus $2 for 1908	7½	$112 buyers
Hongkong Fire Ins. Co., Ld.	1868	$2,000,000	8,000	$250	$50	$1,460,000	$426,218	31-12-09	$27 for 1908	8%	$342½ sales
SHIPPING.											
China & Manila Steamship Co., Ld.	1882	$750,000	1) 30,000	$25	$25	i $57,734	*Dr.* $3,777	31-12-09	$4% for 1906	....	$8½ sellers
Douglas Steamship Co., Ld.	1883	$1,000,000	20,000	$50	$50	$230,000 i $100,589	Nil.	30-6-09	$2½ for year ending 30-6-1908	....	$34 sales
Hongkong, Canton & Macao Steamboat Co., Ld.	1865	$1,200,000	80,000	$15	$15	e $250,000 d. i. $627,500 f $103,545 $ 19,106	$20,766	31-12-09	Final of $1½ for 1909	7½	$30 sellers
Indo-China Steam Navigation Co., Ld. (Preferred) Do. Do. (Deferred)	1882	m £600,000	2) 60,000 2) 60,000	£5	£5	i £148,891	£15,162	31-12-08	6/- for 1907 on pref. share only at ex. 1/9 11/16, $3.154	....	$70 sales & sellers
"Shell" Transport & Trading Co., Ld.	1898	£ 2,000,000	2,000,000	£1	£1	£720,000 i £100,000	£192,994	31-12-08	3rd interim of 2/- per share (coupon No. 12) making in all 4/- for 1908, and interim of 1/- for account 1909	5%	94/-
"Star" Ferry Co., Ld.	1898 1900	$200,000	10,000 10,000	$10 $10	$10 $5	$65,000 i $48,980	$3,121	30-4-09	$1.00 50 cts. for year ended 30-4-09	4 3½	$26 sellers $14½ sellers
REFINERIES.											
China Sugar Refining Co., Ld.	1878	$2,000,000	20,000	$100	$100	e $520,000 r $83,620	*Dr.* $8,090	31-12-09	$10 per share for 1909	3½	$177 buyers
Luzon Sugar Refining Co., Ld.	1882	$700,000	7,000	$100	$100	none	*Dr.* $101,851	31-12-09	$3 for 1897	—	$28 sellers
Perak Sugar Cultivation Co., Ld.	—	Tls. 350,000	7,000	Tls. 50	Tls. 50	Tls. 100,000	Tls. 6,302	31-8-09	Tls. 10 for year ending 31-8-09	....	Tls. 900 sellers
MINING.											
Chinese Engineering & Mining Co., Ld.	1901	£1,000,000	1,000,000	£1	£1	d £215,000 h £84,390	£ 1, 5	28-2-09	Final of 1/6 making 3/- for 09	7	Tls. 18 sales
Headwaters Mining Co.	1908	₱600,000	28) 60,000	₱10	₱10				First year		₱10 buyers
Raub Australian Gold Mining Co., Ld	1892	£200,000	150,000 50,000	£1 £1	18-10 £1	£4,873	*Dr.*	..	1/2 per share, 13th div	....	$8½ sellers
DOCKS, WHARVES AND GODOWNS.											
Fenwick (Geo.), & Co., Ld.	1889	$450,000	s 18,000	$25	$25	$25,275	*Dr* $8,460	31-12-09	$1½ for year ending 31-12-06	....	$10
Hongkong & Kowloon Wharf & Godown Co., Ld.	1886	$3,000.000	60,000	$50	$50	$550,000 t $31,993 i $40,000	$264,847	31-12-09	$2½ for 1909	5	$59 sellers
Hongkong & Whampoa Dock Co., Ld.	1866	$2,500,000	50,000	$50	$50	i $88,412 v $221,000	$132,765	31-12-09	Interim of $1½ for account 1909	..	$62 sellers
Shanghai Dock & Engin'g Co., Ld.	1906	Tls. 5,570,000	13) 55,700	Tls. 100	Tls. 100	Tls. 1,000,000	Tls. 6,261	30-4-09	Interim of Tls. 2½ for account 1910	6¼	Tls. 76 buyers
Shanghai & Hongkew Wharf Co., Ld.	1902	Tls. 3,600,000	36,000	Tls. 100	Tls. 100	b Tls. 697,257 r Tls. 70,000 e Tls. 125,000	Tls. 9,222	31-12-09	Final of Tls. 4 for 1909	7	Tls. 123 sellers
LANDS, HOTELS AND BUILDINGS.											
Anglo-French Land Investment Co., Ld.	1906	Tls. 2,500,000	3) 25,000	Tls. 100	Tls. 100	Tls. 35,000	Tls. 4,314	29-2-09	Tls. 6 for year ending 29-2-09	5¾	Tls. 104
Central Stores, Ld.	—	$751,845	16) 50,123	$15	$15	n. $1,000	$24,641	31-12-08	$1.20 on old & 60 cts. on first new issue	....	$16 buyers
Hongkong Hotel Co., Ld.	1866	$600,000 $400,000	12,000 8,000	$50 $50	$50 $25	$648,975 r $10,000	$1,277	31-12-09	$2.60 on old shares, $1.30 on new shares, for ½ year ending 31-12-10	—	$107½ ex div. $83½ ex div. new
Hongkong Land Investment & Agency Co., Ld.	1889	$5,000,000	50,000	$100	$100	e $250,000	$27,971	31-12-09	Final of $3½ making $7 for year ending 31-12-1909	6½	$102 buyers
Humphreys' Estate & Finance Co., Ld.	1887	$1,500,000	150,000	$10	$10	i $226,945 20) $25,856	5,471	31-12-09	45 cents for 1909	7½	$8½ buyers ex div
Kowloon Land & Bldg. Co., Ld.	1889	$300,000	6,000	$50	$30	none	$269	31-12-09	$2½ for 1909	5	$29 buyers
Shanghai Land Investment Co., Ld.	1888	Tls. 3,900,000	78,000	Tls. 50	Tls. 50	Tls. 1,523.045 e Tls. 300,000	Tls. 63,969	31-12-09	Final of 6% bonus Tls. 1 for 1909	6¾	Tls. 111
West Point Bldg. Co., Ld.	1889	$625,000	12,500	$50	$50	none	$1,958	31-10-09	Final of $1.80 for 1909 making in all 3.80 per share for 09	8¾	$40 sellers
COTTON MILLS.											
Ewo Cotton Spinning & Weaving Co., Ld.	1895	Tls. 1,000,000	5) 20,000	Tls. 50	Tls. 50	Tls. 250,000 Tls. 40,098	Tls. 10,991	31-10-09	Tls. 11 for year ended 31-10-09	8½	Tls. 137½ sellers
Hongkong Cotton Spinning, Weaving & Dyeing Co., Ld.	1901	$1,250,000	125,000	$10	$10	e $20,000	$26,297	30-7-09	50 cents for year ending 31-7-08	..	$6½ sellers

FAR EASTERN STOCKS AND QUOTATIONS—(Continued.)

Stock.	When Established	Capital.	No. of Shares.	Value.	Paid Up.	Reserve	At Working Account.	Date.	Last Dividend.	Approximate Yield per cent. per annum at Present Quotation.	Closing Quotations
International Cotton Manufacturing Co., Ld.	1895	Tls. 750,000	6) 10,000	Tls. 75	Tls. 75	Tls. 175,000	Tls. 8,372	30-9-09	Tls. 7½ for year ending 30-9-09	....	Tls. 62
Laou-kung-mow Cotton Spinning & Weaving Co., Ld.	1895	Tls. 800,000	8,000	Tls. 100	Tls. 100	none	Tls. 4,829	31-12-08	Tls. 6 for 1909	....	Tls. 78
Soy Chee Cotton Spinning Co., Ld	1895	Tls. 1,000,000	2,000	Tls. 500	Tls. 500	Tls. 31,172	Tls. 31,173		Tls. 25 for 1909	....	Tls. 225
MISCELLANEOUS.											
Bell's Asbestos Eastern Agency, Ld.	1895	£5,377.10s.	11) 8,604	12/6	12/6	£1,500	£682	31-12-08	15% for 1908		$10
China-Borneo Co., Ld.	1903	$720,000	8) 60,000	$12	$12	$40,000	Nil.	31-12-08	5% for 1909	10	$11½ sellers
China Light & Power Co., Ld. Do. do. Special Shares	1901 1907	$550,000	50,000 17) 50,000	$10 $1	$10 $1	none	$46,483	31-7-09	60 cents for year ending 28-2-06		$2 sellers
China Provident Loan & Mortgage Co., Ld.	1898 *a*	$1,250,000	7) 125,000	$10	$10	$100,000	$2,602	31-12-09	80 cents for 1909		$1½ buyers
Dairy Farm Co., Ld.	1896	$300,000	40,000	$7½	$6	*l* $10,000 $10,000	$1,850	31-7-09	$1.20 for year ending 31-7-09	8½	$19 buyers
Green Island Cement Co., Ld.	1897	$4,000,000	400,000	$10	$10	$14,000	$4,290	31-12-09	Final of 40 cts. making in all 75 cts. per share for 1909	10	$7½ sellers & sales
H. Price & Co., Ld.	1907	$120,000	19) 15,000	$10	$10	$5,000	$670	31-12-08	80 cents for year ending 31-12-08	8	$12
Hongkong Electric Co., Ld.	1889	$600,000	60,000	$10	$10	none	$11,798	28-2-10	A dividend of $1.20 per share and a bonus of 10 cents	6	$21 sales
Hongkong Ice Co., Ld.	1881	$125,000	5,000	$25	$25	*k* $150,000	$12,662	31-12-09	Final of $8 per share making in all $10 1909	10	$160 sellers
Hongkong Rope Manufacturing Co., Ld.	1883	$600,000	$60,000	$10	$10	$40,000	$9,176	31-12-09	Final of $1 making in all $2 for 1909	8½	$21½ sellers
Maatschappij tot Mijn-, Boschen Landbouwexploitatie in Langkat	1902	Gs. 2,500,000	25,000	Glds. 100	Glds. 100	Tls. 547,500 *f* Tls. 63,914 21 Tls. 547,500	Tls. 316,682	31-10-08	Interim of Tls. 12½ for 1910	8½	Tls. 1425 sellers
Peak Tramways Co., Ld. Do. (New)	1907	$750,000	25,000 50,000	$10 $10	$10 $1	$20,000	$2,204	30-4-09	80 cents on fully paid shares & 8 cents on $1 paid shares for year ending 30-4-09	6 3	$15 buyers $1.60 buyers
Philippine Co., Ld.	1904	$750,000	75,000	$10	$10	none	Ps. 18,640	31-12-08	None	....	$11 buyers
Robinson Piano Co., Ltd.	1900	$200,000	22) 4,000	$50	$50	$5,000	$61,138	31-8-08	6% for ½ year ending 30.9.07	....	$50 sellers
Shanghai-Sumatra Tobacco Co., Ld.	1902	Tls. 600,000	9) 30,000	Tls. 20	Tls. 20	Tls. 24,820 *w* Tls. 75,000	Tls. 5,250	31-10-08	Final of Tls. 5 making Tls. 8 for 1908	4½	Tls. 315 sellers
South China Morning Post, Ld.	1903	$150,000	6,000	$25	$25	none	*Dr.* $31,096	31-8-09	None	....	$25 buyers
Steam Laundry Co., Ld.	1902	$100,000	20,000	$5	$5	none	$63	31-5-09	40 cents for year ending 30-5-09	7	$5 buyers
Union Waterboat Co., Ltd.	1905	$500,000	15) 50,000	$10	$10	*w* $11,956	..	31-12-08	60 cents for year-end. 31-12-1908.	5	$9 sellers
United Asbestos Oriental Agency, Ld.	1896	$100,000	10,000	$10	$4	$46,000	$342	31-5-09	60 cents per ordinary share for year ending 31-5-09	6½	$12 sellers
Watson (A. S.) & Co., Ld.	1886	$900,000	90,000	$10	$10	$300,000 *e*) $25,000	$2,613	31-12-08	Final of 30 cents making 60 cents for 1908	6½	$6¾ buyers
Weismann Limited	1904	$30,000	3,000	$10	$10	$12,250	$67	31-7-09	10 per cent for year endg. 31.7.08.	....	$10 buyers
William Powell, Ld.	1901	$105,000	15,000	$7	$7	none	$782	30-6-09	Final of 30 cents making 80 cents year ending June 30th 1906	....	$3 sellers
RUBBERS											
Allagar Rubber Estates, Ltd.	1909	£85,000	29) 750,000	2/-	2/-	....	....	....	....	....	7/-
Anglo-Malay Rubber Co., Ltd.	1905	£150,000	1,500,000	2/-	2/-	....	....	....	Interim of 6d for a/c 1910	....	32/-
Balgownie Rubber Estate, Ltd.	1905 ††	$200,000	‡‡ 20,000	†† $2	†† $2	$7,400	$11,205	31-3-09	20% Interim for 1909	....	$24 [S'pore]
Castlefield Rub. Ld., [fully pd.]	1906	£35,000	27) 32,650	£1	£1	none	....	....	....	....	120/-
Damansara (Selangor) Rub. Co.	1906	£110,000	25 110,000	£1	£1	nil.	£2,220	31-12-08	2/6 for 1909	....	185/-
Golconda Malay Rubber Co.	1907	£80,000	26 80,000	£1	£1	nil.	nil.	....	....	....	140/-
Highland & Lnd. Para R. Co. Do. Do. [fully paid] Do. Do. [partly paid]	1906	£310,000	=181,454 123,546	£1 £1	£1 15/-	£8,784	....	....	7½% for 1909 (interim.)		155/- ex rights Nominal
Kamuning (Perak) Rb. & Tin Co. do do A Shares do do B Shares	1909	£200,000	950,000 105,000	2/- £1	1/- £1	nil.	nil. 1,82	....	....	....	11/- prem
Kuala Lumpur Rubber Co., Ltd.	1906	£180,000	180,000	£1	£1	£4,000	....	....	A final dividend of 2/- for 1909	....	225/-
Linggi Plantations, Ltd. (ord.) Do. Do. (7% pref.)	1895 Reconst	£100,000	× 900,000 10 000	2/- £1	2/- £1	....	....	....	....	....	65/- Nominal
Ledbury Rubber Estates Ltd. Do. Do. (contrib.)	1908	£125,000	§§ 60,000 §§ 40,000	£1 £1	£1 7/6	....	....	....	....	....	112/6 58/6
Sagga Rubber Co. Ld.	1903	£20,000	24) 2,000	£1	£1	nil.	nil.		....	....	320/-
Sandycroft Rubber Co.	1904	$100,000	50,000	$2	$2	$20,000	$1,275	31.1 08	Interim of 30% for 1909	....	$43 b. ex rights & div.
Sekong Rubber Co., Ld.	1908	£80,000	27) 80,000	£1	12/6	nil.	nil.	....	....	....	40/- prem.
Shelford Rubber State Ld.	1906	£65,000	65,000	£1	£1	nil.	£836	31.12.08	3% for 1908	....	85/-
Singapore & Johore Rb. Co., Ld.	1903	$250,000	2,500	$10	$10	nil.	nil.	....	....	....	$22
Sungei Choh. Rb. State Co., Ld.	1907	£45,000	45,000	£1	17/-	nil.	nil.	....	....	....	122/6
Sungei Kapar Rubber Co.	1906	£110,000	23) 110,000	£1	£1	nil.	£3,448	31.12.08	8½% Interim for 1909	....	205/-

Loans and Debentures.	Agents for the Loan.	Amount of Loan.	Par Value.	Outstanding Bonds.	When Payable.	Closing Quotations.
China Government, 7 per cent. Silver Loan 1886 E	Hongkong & Shanghai Banking Corporation.	Tls. 767,200	Tls. 250	1914	Mar. 31st and Sept. 30th each year until Mar. 31st, 1917	par. (Plus interest)
Hongkong Hotel Company, Ltd., 6 per cent. Mortgage Debentures of 1899 ‡	Hongkong & Shanghai Banking Corporation.	$750,000	$500	§ all	Half yearly, June 30th and December 31st	par (Plus interest)
Shanghai & Hongkew Wharf Company, Ltd., 6 per cent. Debentures of 1902	Hongkong & Shanghai Banking Corporation.	Tls. 543,900	Tls. 100	....	Half yearly, June 30th and December 31st	Tls. 103½ (Plus interest)
Astor House Hotel Company, Ltd., 8 per cent. Debentures of 1903	Hongkong & Shanghai Banking Corporation.	Tls. 500,000	Tls. 100	....	Half yearly, January 1st and July 1st	102½ (Plus interest)
Chinese Engineering & Mining Co., Ltd., 6 per cent. Debentures of 1903 †	....	£500,000	¶	£431,960	Half yearly, June 30th and December 31st	par. (Plus interest)
International Cotton Manufacturing Co., Ltd. 7% Debentures of 1901	Russo Chinese Bank	Tls. 500,000	Tls. 100	‖	Half yearly, March 31st and Sept. 30th	Tls. 97½. (Plus interest)

a Authorized capital $2,000,000.
b Building Reserve Account.
c Capital Reserve Fund.
d Depreciation Fund.
e Equalization of Dividend Fund.
f Exchange and Investment Fluctuation Account.
g Gold Reserve Fund
h Exchange Reserve Account.
i Insurance Fund.
j Reinsurance Fund.
k Contingencies Account.
l Legal Reserve Fund.
m Authorized Capital
n Sinking Fund.
o Raw Sugar Reserve Account.
p Premium on New Issue.
q Boiler Repairs and Renewals Account
r Repairs and Renewals Account.
s Silver Reserve Fund.
t Depreciation and Repair Account
u Underwriting Suspense Account.
v Special account
w Special Works Fund.
x Extra Reserve Fund.
y 72,560 owned by the Company.
z 7,200 shares unissued.
1 4,000 shares unissued.
2 First issue of 60,000, of which 10,411 unallotted.
3 5,000 shares unissued.
4 4,480 shares unissued.
5 5,000 shares unallotted.
6 1,616 shares unallotted.
7 75,000 shares unissued.
8 14,000 shares unissued.
9 17,000 shares unissued.
10 40,453 shares actually issued.
11 7,688 shares actually issued.
12 4,200 shares unissued.
13 500 shares unissued.
14 399 shares unissued.
15 22,277 shares unissued.
16 10,000 shares unissued.
17 Special shares are entitled to half of the profits.
18 Capital contributed by Chinese Government-Kuping Tls. 5,000,000.
19 12,000 issued only.
20 Typhoon and Floods Insurance Fund
21 Special Cash Reserve.
22 1000 shares unissued.
23 10,000 shares unissued.
24 4595 part paid shares.
25 7,500 shares unissued.
26 10,000 shares unissued.
27 2.350 shares unissued.
28 25,000 shares unissued.
29 100,00 shares unissued.
*Based on last year's dividend.
** Based on present dividend.
§ 216 held by the Company.
‖ Only Tls. 134,000 taken up.
¶ In certificates of £20 and £100.
‡ Redeemable in 10 years, or at option of Comp., the Company giving 6 months notice.
† Redeemable at par at rate of £10,000 per annum from 31st December 1903 to 31st December 95.
*** Redeemable at par on 30th June, 1915.
Dr. Deficit.
†† Singapore dollars.
‡‡ 4,880 shares unissued.
× 16,756 shares unissued.
§§ 25,000 shares unissued.
4140 shares unissued.

ADDITIONAL SHANGHAI SHARE QUOTATIONS

April 16, 1910

STOCK	CLOSING QUOTATIONS	HIGHEST AND LOWEST PRICES DURING THE WEEK	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	LAST DIVIDEND	WHEN PAID
Oriental Consolidated Mining Co., Ltd.	35[10		G. $5,000,000	500,000	G. $10	G. $10	none	Total of Gold 1.15 for 1909	Jan. 10, 1910
Vulcan Iron Works, Limited	Tls. 40		Tls. 500,000	1,000	Tls. 500	Tls. 500	—	Tls. 50 for year ended 31.8.06	Nov. 1, 1909
Yangtsze Wharf & Godown Co., Limited	Tls. 207		Tls. 250,000	2,500	Tls. 100	Tls. 100	Tls 50,000	Tls. 15 for 1909	April 1, 1910
Wei-hai-wei Land & Building Co., Limited	Tls. 9 nominal		Tls. 91,850	3,674	Tls. 25	Tls. 25	—	Interim of $2.00 for 1909	Aug. 8, 1909
Hotel des Colonies Company, Limited	Tls. 3		Tls. 112,500	9,000	Tls. 12½	Tls. 12½	Tls. 29,783	6% for 1907	May 29, 1908
Anglo-German Brewing Co., Limited	$85 buyers		$100,000	4,000	$100	$100	none	$7 for 1907	Mar. 12, 1908
Butler Tile Works, Limited	Tls. 25		Tls. 60,000	1,200	Tls. 50	Tls. 50	—	Tls. 3 for year ending 31.3.09	June 8, 1909
Major Bros., Limited	Tls. 55		Tls. 300,000	6,000	Tls. 50	Tls. 50	—	—	—
Oriental Ice Company, Limited	Tls. 20		Tls. 130,000	2,600	Tls. 50	Tls. 50	—	First year	—
Scharffs Oil and Bone Mills, Ltd	Tls. 40		Tls. 200,000	4,000	Tls. 50	Tls. 50	—	First year	—
Shanghai Ice Company, Limited	Tls. 12		Tls. 200,000	8,000	Tls. 25		—	3% for 1907	Mar. 14, 1908
Campbell, Moore & Co., Limited	$10		$12,000	1,200	$10	$10	$9,000	$3 for 1905	Apr. 2, 1906
Dunning & Company, Limited	$35 sellers		$100,000	2,000	$50	$50	—	$5 year ending 28.2.08	Apr. 15, 1908
J. Llewellyn & Co., Limited	$60 nominal		$72,000	1,200	$60	$60	—	7.20 for 1908	Apr. 1, 1906
Lane, Crawford & Company	$150		$250,000	2,500	$100	$100	—	Final of 3% making 6% for 1908	June 8, 1909
S. Moutrie & Company, Limited	$40		$250,000	5,000	$50	$50	—	$4 for year ended March 31, 1909	June 18, 1909
Weeks & Company, Limited	$25 buyers		$400,000	20,000	$20	$20	$40,000	Interim of 80 cents for 1909	Dec. .., 1909
Dominion Rubber Co., Limited	Tls. 62½		Tls. 225,000	22,500	Tls. 10	Tls. 4	—	First year	—
Kalumpong Rubber Co., Ltd.	Tls. 700		Tls. 700,000	14,000	Tls. 50	Tls. 50	** Tls. 11,844.48	16% for 1908	Nov. 9, 1909
Senawang Rubber Estates Company, Limited	Tls. 1550		Tls. 250,000	2,500	Tls. 100 Tls. 100	Tls. 100 Tls. 75	—	—	—
Tebong Rubber and Tapioca Estate, Limited	Tls. 48		£76,000	76,000	£1	£1	—	—	—
Shanghai Mercury, Limited	Tls. 50 buyers		Tls. 105,500	2,100	Tls. 50	Tls. 50	—	Interim of 4% for ½ year 1909	June 21, 1909
Shanghai Mutual Telephone Co., Limited	Tls. 67½ buyers		Tls. 675,000	13,500	Tls. 50	Tls. 50	—	Tls. 3 for 1907	June 28, 1909
China Export, Import & Lumber Company, Limited	Tls. 75		Tls. 350,000	500	Tls. 100	Tls. 50	—	10 p. c. for year ending 29.2.08	May 1, 1908
China Printing Co., Limited	Tls. 42½		Tls. 750,000	1,500	Tls. 50	Tls. 50	—	7% 1908	Apr. 18, 1909
Hirano Mineral Water Co., Ltd.	Y. 10		Y. 125,000	5,000	Y. 25	Y. 25	—	10%=yen 2½ for year ending 30th Sept. 08 Y. 1.20 for year ended Feb. 29	Apr. 26, 1909
E. E. Porter & Co., Limited	$50		$100,000	2,000	$50	$50	—	$6 for 1907	Apr. 22, 1908
Shanghai Electric & Asbestos Company, Limited	$21 sellers		$125,000	5,000	$25	$25	—	8% for year ended Feb. 28, 09	June 21, 1909
Shanghai Electric Construction Company, Limited	£6 sellers	£11	£320,000	32,000	£10	£10	—	First year	—

DEBENTURES

LOANS	PRICE—PLUS ACCRUED INTEREST	AMOUNT OF LOAN	OUTSTANDING	NOMINAL VALUE	RATE OF INTEREST	WHEN PAYABLE
Shanghai Municipal Debentures 1892	Tls. 92½	Tls. 50,000	Tls. 45,400	Tls. 100	5 %	June & Dec.
do 1893	,, 96	,, 125,000	" 32,000	" 100	5½ ,,	Do
do 1894	,, 105	,, 105,000	" 60,000	" 100	6 ,,	Do
do 1895	,, 92½	,, 115,000	" 32,600	" 100	5 ,,	Do
do 1896	,, 92½	,, 140,000	" 131,800	" 100	5 ,,	Do
do 1897	,, 92½	,, 268,800	" 268,400	" 100	5 ,,	Do
do 1898	,, 105	,, 300,000	" 60,000	" 100	6 ,,	Do
do 1900	,, 96	,, 33,900	" 31,700	" 100	5½ ,,	Do
do 1901	,, 105	,, 250,000	" 200,000	" 100	6 ,,	Do
do 1902	,, 105	,, 150,000	" 150,000	" 100	6 ,,	Do
do 1903	,, 105	,, 490,500	" 490,500	" 100	6 ,,	Do
do 1904	,, 105	,, 214,500	" 214,500	" 100	6 ,,	Do
do 1905	,, 105	,, 320,000	" 320,000	" 100	6 ,,	Do
do 1907	,, 105	,, 250,000	" 250,000	" 100	6 ,,	Do
Chinese Imperial Government Loan 1886 E	,, 250	,, 767,200	" 354,400	" 250	7 ,,	Mar. & Sept
Shanghai Land Investment Co., Debentures 1890	,, 103½	,, 250,000	" 250,000	" 100	6 ,,	May & Nov.
do 1892	,, 96	,, 250,000	" 250,000	" 100	5½ ,,	June & Dec.
do 1894	,, 103½	,, 250,000	" 250,000	" 100	6 ,,	Mar. & Sept.
do 1896	,, 92½	,, 250,000	" 250,000	" 130	5 ,,	June & Dec.
do 1900	,, 103½	,, 250,000	" 250,000	" 100	6 ,,	April & Oct.
do 1901	,, 104	,, 250,000	" 250,000	" 100	6 ,,	June & Dec.
do 1901	,, 96	,, 100,000	" 100,000	" 100	5 ,,	May & Nov.
do 1902	,, 103½	,, 400,000	" 400,000	" 100	6 ,,	June & Dec.
do 1905	,, 103½	,, 250,000	" 250,000	" 100	6 ,,	Do
Shanghai Waterworks Co., Debentures 1909	,, 103	,, 815,900	" 815,900	" 100	6 ,,	Do
Perak Sugar Cultivation Co., Debentures 1902	,, 101	,, 200,000	" 200,000	" 100	7 ,,	April & Oct.
Shanghai Gas Co., Debentures 1909	,, 103	,, 800,000	" 800,000	" 100	5 ,,	Do
Shanghai and Hongkew Wharf Co., Debentures 1902	,, 102	,, 839,100	" 799,800	" 100	6 ,,	June & Dec.
Astor House Co., Debentures 1905	,, 103	,, 750,000	" 500,000	" 100	7 ,,	Do
British Municipal Council, Hankow 1901	Sh. ,, 105	H'kow Tls 100,000	H'kow Tls 100,000	" 100	7 ,,	June & Dec.
Shanghai Club Debentures 1907	,, 100	Tls. 170,000	Tls. 170,000	" 100	6 ,,	Do
Country Club Debentures	,, 97	,, 139,000	" 139,000	" 100	6 ,,	Do
do 1907	,, 97	,, 92,000	" 92,000	" 100	6 ,,	Do
Lane Crawford & Co., Debentures 1907	,, 102½	,, 110,000	" 110,000	" 100	7 ,,	Mar. & Sept.
Anglo-French Land Debentures 1908	,, 102	,, 250,000	" 250,000	" 100	6 ,,	June & Dec.
Central Stores Ltd. Debentures 1908	,, 102½	,, 250,000	" 250,000	" 100	8 ,,	Do
Shanghai Mutual Tel. Co. Debentures 1909	,, 102½	,, 350,000	" 200,000	" 100	6 ,,	Do

SINGAPORE SHARE QUOTATIONS

(Courtesy Messrs. Fraser & Co., Brokers, Singapore, April 27, 1910)

Date of Formation	Capital	Capital paid up	No. of Shares Issued	Issue Value	Paid up	Reserve	Last Dividend	Name	Buyers.	Sellers.
								MINING		
1906	£30,000	30,000	30,000	1	1	....	....	Malaya and Siam Corporation Ltd.	....	5[-
1906	£250,000	179,500	500,000e	5/-	5/-	....	....	Pahang Consolidated Co., Ltd.	7[6	8[6
1903	$300,000	300,000	30,000	10	10	....	10% interim for 1909	Belat Tin Mining Co., Ltd.	4.00	5.00
1907	$300,000	225,000	22,500s	10	10	....	....	Bruang Ltd.	4.50	5.00
1901	$600,000	600,000	60,000	10	10	25,000	6% for year ending 30-4-09	Bruseh Hydraulic Tin Mining Co., Ltd.	5.00	6.00
1907	$400,000	375,000	37,500b	10	10	....	....	Kanaboi, Ltd.	2.15	2.50
1901	£60,000	60,000	60,000	1	1	....	2[- interim 1909	Kinta Tin Mines, Ltd.	14.25	14.75
1905	$150,000	99,000	9,900c	10	10	6,485.68	35% for year ending 31-12-07	Kuantan Tin Mining Co., Ltd.	3.00	3.25
1906	£120,000	120,000	120,000	1	1	....	1[- interim 1909	Lahat Mines Ltd.	8.00	9.00
1906	$450,000	450,000	45,000	10	10	....	....	Malacca Tin Dredging Co., Ltd.	2.50	2.75
1907	£100,000	80,000	80,000a*	1	1	....	....	Pengkalen. Ltd.	6.50	7.50
1904	£100,000	80,000	80,000	1	1	....	....	Pusing Bahru Tin Mines, Ltd	8.25	8.50
1904	£120,000	100,000	100,000d	1	1	6,000	45% for year ending 30-6-07	Pusing Lama Tin Mines, Ltd.	----	3.00
1907	$450,000	300,000	30,000y	10	10	....	....	Rahman Hydraulic Tin, Ltd.	8.50	9.00
1905	£27,000	27,000	27,000	1	1	....	1[- for 1907	Rambutan, Ltd.	13.00	13.50
1892z	£200,000	200,000	200,000	1	1	4,873	1[2 paid April, 1910	Raub Aust. Gold Ming. Co., Ltd,	4.75	5.00
1905	£40,000	40,000	40,000	1	1	....	....	Redhills Tin Mining Co., Ltd.	3.00	3.50
1900	$110,000	110,000	22,000	5	5	....	3% for year ending 22-1-09	Royal Johore Tin Mining Co., Ltd.	1.35	1.50
1907	$550,000	500,000	50,000f*	10	10	....	....	Salak South, Ltd.	4.00	5.00
1907	£80,000	80,000	80,000	1	1	....	....	Sempam Tin Mines, Ltd.	2.35	2.50
1906	$850,000	850,000	85,000	10	10	25,000	5% interim for 1909	Serendah Hydraulic Tin Ming. Co., Ltd.	6.50	7.50
1899	$230,000	230,000	23,000	10	10	....	3% for ½ year ending 31-12-08	Sipiau Tin Co., Ltd.	1.50	1.75
1909	$200,000	$150,000	15,000	10	10	....	....	Sungei Gau Tin Mining Co., Ltd.	4.50	5.00
1907	£90,000	70,000	70,000t	1	1	....	1[6 interim 1909	Tekka, Limited.	21.00	22.00
1906	£150,000	150,000	150,000	1	1	....	1[- interim 1909	Tongkah Harbour Tin Dredging Co., Ltd.	12.75	13.00
1902	£160,000	160,000	160,000	1	1	....	3[- interim 1909	Tronoh Mines, Ltd.	13.00	14.00

SINGAPORE SHARE QUOTATIONS.—(Continued.)

Date of Formation	Capital	Capital paid up	No. of Shares Issued	Issue Value	Paid up	Reserve	Last Dividend	Name	Buyers.	
								STERLING RUBBER		
1909	£85,000	75,000	750,000x*	2/-	2/-			Allagar Rubber Estates, Ltd.	7/-	8/-
1905	£150,000	150,000	1,500,000	2/-	2/-		80% for year ending 31-12-09.	Anglo-Malay Rub. Co., Ltd.	1.12.0	1.14.0
1909	£50,000	35,250	470,000g‡	2/-	1/6			Batang Malaka Rubber Estates, Ltd	2/6	3/6 p.
1904	£30,000	20,187 10/-	19,000	1	1		50% for year ending 31-12-1909	Batu Caves Rub. Co., Ltd	17.10.0	18.10.0
			4,750f	1	5/-					
1906	£80,000	70,000	70,000l*	1	1		2½% interim 1909	Batu Tiga (Selangor) Rubber Co., Ltd.	5.0.0	5.10.0
1909	£100,000	68,908	57,816	1	1			Bukit Kajang Rubber Estates, Ltd	3.7.6	3.10.0
			22,184n*	1	10/-			" " " part paid	2.5.0	2.10.0p.
1907	£30,000	25,500	24,000e*	1	1			Bukit Lintang Rubber Estates, Ltd	5.0.0	5.10.0
			6,000	1	5			" " " part paid	2.0.0	2.5.0p.
1903	£70,000	66,700	66,700g	1	1	2,000	60% interim 1909	Bukit Rajah Rubber Co., Ltd.	20.0.0	21.0.0
1906	£35,000	30,000	30,000s*	1	1			Castlefield (K.) R. Estate, Ltd.	5.0.0	5.15.0.
1909	£225,000	175,000	1750,000t*	2/-	2/-			Chersonese (F.M.S.) Estates, Ltd	6/-	7/-
1904	£16,000	16,000	100,000	2/-	2/-		25% interim 1909	Cicely Rubber Estates Co., Ltd	2.15.0	2.18.6
			60,000	2/-	2/-		26¼% interim 1909	" " " " 5% Pref.	2.15.0	2.18.6
1905	£75,000	62,007	62,007i	1	1	1,000	20% interim 1909	Consolidated Malay Rub. Estates, Ltd	16.0.0	17.0.0
1906	£110,000	102,500	102,500k*	1	1		50% for year ending 31-12-09	Damansara (Selangor) Rubber Co., Ltd.	8.10.0	9.0.0
1903	£600,000	444,200	444,200a	1	1			Duff Development Co., Ltd.	1.16.0	1.18.0
1909	£45,000	40,000	40,000p*	1	1			Edinburgh Rub. Estates, (Selangor) Ld.	7.0.0	8.0.0
1907	£80,000	70,000	70,000n	1	1			Golconda Rubber Co., Ltd.	6.0.0	7.0.0
1906	£310,000	305,000	305,000j	1	1	8,784	15% interim 1909	Highlands & Lowds. Para Rub. Co., Ltd.	8.5.0	8.10.0
1904	£50,000	30,000	30,000q*	1	1	2,500	25% interim	Inch Kenneth Rubber Estates, Ltd	16.0.0	17.0.0
1909	£200,000	182,500	950,000p	2/-	1/-			Kam. (P.) R. & T. Co., Ltd. "A" Shares	11/-	12/-p.
			105,000	1	1			" " " " "B" "	....	nom.
1905	£65,000	65,000	65,000	1	1			Kapar Para Rubber Estates, Co., Ltd	9.0.0	10.0.0
1909	£35,000	£18,750	90,000	2/-	2/-			Kota Tinggi Johore Rubber Co., Ltd.	4/6	5/6
			160,000	2/-	1/-			" " " "	2/-	3/- p.
1906	£180,000	180,000	180,000	1	1		20% for year ending 30-6-09	Kuala Lumpur Rubber Co., Ltd	11.0.0	11.10.0
1907	£100,000	90,000	90,000h*	1	1		25% for year ending 31-12-09	Labu (F.M.S.) Rub. Co., Ltd. part paid	9.10.0	10.0.0
1907	£320,000	269,780	198,930v	1	1	3,000	10% interim 1909	Lanadron Rubber Estates, Ltd.	7.10.0	8.0.0
			70,850	1	15/-		10% interim 1909	" " " part paid	5.15.0	6.5.0 p.
1908	£125,000	75,000	60,000g*	1	1			Ledbury Rubber Estates Ltd.	5.0.0	5.5.0
			40,000	1	7/6			" " " part paid	3.0.0	3.10.0p.
1895	£100,000	98,324 8/-	883,244w	2/-	2/-	4,000	65% interim for 1909	Linggi Plantations Ltd.,	3.4.0	3.6.0
			10,000	1	1		7% for year ending 31-12-08	" " " 7% Pref.	....	nom.
1907	£140,000	118,000	118,000k	1	1		3% for year ending 31-12-08	London Asiatic R. & Produce Co., Ltd.	7.0.0	8.0.0
1909	£220,000	125,000	50,000	1	1			Lumut Rubber Estates, Ltd.	2.15.0	3.5.0
			150,000	1	10/-			" " " " part paid	1.17.6	2.2.6 p.
1906	£400,000	300,000	185,000	1	1		10% interim for 1909	Malacca Rubber Plants., Ltd.	15.0.0	16.0.0
			115,000	1	1		" " "	" " " " 7½% Pref.	15.0.0	16.0.0
1909	£210,000	175,000	1,750,000	2/-	2/-			Merlimau Rubber Estates, Ltd	7/6	8/6
1903	£30,000	22,500	225,000l	2/-	2/-		125% for year ending 31-12-09	Pataling Rubber Estates Synd. Ltd	3.18.0	4.0.0
1906	£85,000	85,000	85,000	1	1		12½% interim for 1909	Perak Rubber Plantations, Ltd	6.0.0	7.0.0
1909	£60,000	36,875	15,000z*	1	1			Rembia Rubber Estates Ltd.	1.10.0	1.15.0
			35,000	1	12/6			" " " 6% Cum. Pref.	12/6	16/6 p.
1904	£20,000	18,752	20,000u	1	1			Sagga Rubber Company, Limited	16.0.0	17.0.0
1905	£100,000	100,000	71,378 28,622l‡	1	1			Sapong Rubber and Tobacco Estates, Ltd.	1.16.0	2.0.0
1907	£100,000	100,000	100,000	1	1			Seafield Rubber Co., Ltd	7.10.0	7.15.0
1898	£30,000	30,000	300,000	2/-	2/-	3,000	125% interim 1909	Selangor Rubber Co., Ltd	4.0.0	4.5.0
1909	£50,000	32,000	40,000e‡	1	16/-			Sendayan (F. M. S.) Rubber Co., Ltd	2.0.0	2.2.6 p.
1906	£65,000	65,000	65,000	1	1		3% for year ending 31-12-08	Shelford Rubber Estate, Ltd	4.7.6	4.15.0
1909	£150,000	100,000	100,000i‡	1	15/-			Sialang Rubber Estates, Ltd	2.0.0	2.2.6 p.
1909	£120,000	100,000	100,000s*	1	1			Singapore Para Rubber Estates, Ltd.	4.2.6	4.7.6
1906	£192,500	192,500	1,925,000	2/-	2/-		7½% interim 1909	Straits Settlements (B.) Rub. Co., Ltd	10/-	11.6
1907	£45,000	40,500	12,600	1	1			Sungei Choh Rub. Estate, Ltd. Fully pd.	4.10.0	5.0.0
			32,400	1	17/6			" " " " part paid	4.0.0	4.5.0 p.
1906	£110,000	100,000	100,000c*	1	1		7½% interim 1909	Sungei Kapar Rubber Co., Ltd	10.0.0	10.10.0
1907	£70,000	55,000	55,000	1	1			Sungei Salak Rubber Co., Ltd	4.15.0	5.5.0
1904	£50,000	50,000	50,000	1	1			Sungei Way (Selangor) Rub. Co., Ltd	6.0.0	6.10.0
1908	£150,000	60,000	36,000	1	1			Tebrau (Johore) Rubber Co	5.10.0	6.10.0
			64,000	1	7/6			" " " part paid	4.0.0	4.5.0 p.
1907	£200,000	170,000	170,000j*	1	1		5% interim 1910	United Serdang (S.) R. Plantations, Ltd.	7.0.0	7.10.0
1908	£85,000	65,000	650,000	2/-	2/-		10% for year ending 30-6-09	United Sumatra Rubber Estates, Ltd.	15/-	16/6
1904	£60,000	50,600	506,000m	2/-	2/-		25½% interim for 1909	Vallambrosa Rubber Co., Ltd.	2.15.0	2.18.0
								DOLLAR		
1909	$120,000	105,000	105,000w*	1	1			Alor Gajah Rubber Estate, Ltd	4.00	4.50
1909	$750,000	600,000	140,000b‡	5	5			Ayer Panas Rubber Estates, Ltd	14.50	15.00
1905	$200,000	151,200	151,200 x	1	1	5,250	100% for year ending 31-3-1910	Balgownie Rub. Estate, Ltd	23.00	25.00
1910	$500,000	500,000	50,000	10	10			Bukit Timah Rubber Estates, Ltd	22.00	24.00
1910	$750,000	700,000	70,000h‡	10	10			Changkat Serdang Estates, Ltd	19.00	21.00
1909	200,000	62,500	12,500	10	5			Cheras Rubber Estates, Ltd	8.50	10.00 p.
1909	$550,000	475,000	475,000v*	1	1			Elphinstone Estates, Ltd	4.50	5.00
1909	$300,000	300,000	300,000	1	1			Glenealy Plantations, Ltd.	2.75	3.25
1910	$200,000	164,285	12,857m‡	5	5			Haytor Rubber States, Ltd.	....	nom.
			20,000	5	4			" " " " part paid	8.00	10.00 p.
1910	$600,000	150,000	30,000c‡	10	5			Henrietta Estates, Ltd.	5.00	7.00
1906	$680,000	680,000	40,000	17	17			Hevea Rubber Planting Co. Ltd.	20.00	23.00
1909	$250,000	200,000	20,000a‡	10	10			Indragiri (S.) R. and Gutta P. Co., Ltd.	42.00	45.00
1907	$300,000	200,000	20,000d‡	10	7			Kombok Rubber Co., Ltd	20.00	21.00
1909	$400,000	400,000	80,000	5	5			Pajam Limited.	19.00	20.00
1909	$200,000	200,000	200,000	1	1			Pantai, Limited	2.50	2.75
1909	$500,000	450,000	45,000m*	10	10			Pegoh, Limited	55.00	56.00
1910	$450,000	295,000	45,000f‡	5	5			Port Dickson Rubber Co., Ltd	17.00	17.50
			35,000	5	2			" " "	6.00	8.00 p.
1904	$100,000	100,000	50,000b*	2	2	20,000	150% for year ending 31-1-10	Sandycroft Rubber Co., Ltd	43.00	44.00
1905	$500,000	500,000	5,000	100	100			Singapore Rubber Co., Ltd.	600.00	650.00
1903	$425,000	328,800	121,150	2	2		20% for year ending 31-12-09	Singapore & Johore Rub. Co., Ltd	20.00	21.00
			87,500	2	1		" " " "	" " " part paid	17.00	18.00 p.
1909	$250,000	60,000	10,000o*	10	6			St. Helena Rubber Coy., Ltd	35.00	73.00 p.
1909	$200,000	165,000	33,000p*	5	5			Teluk Anson Rubber Estate, Ltd	11.50	12.50
1909	$1,000,000	637,500	737,500y*	1	1			United Singapore Rubber Estates, Ltd.	4.50	4.75
				1	-/50			" " " " "	....	nom.
								GENERAL		
1903	£400,000	400,000	400,000	1	1			Singapore Electric Tramways, Co., Ltd.	4/3	4/6
1907	$1,500,000	1,065,150	25,000d*	10	10		10% for year ending 31/12/08	Eastern Smelting Co. Ltd	....	11.50 n.
			116,450	10	7		10% for year ending 31-12-08	" " " part paid	7.50	8.00
1898	$225,000	225,000	4,500	50	50	170,000	15% & 5% bon. for yr. end. 31-12-09	Fraser & Neave, Ltd.	200.00	210.00
1905	$2,400,000	2,400,000	18,000	100	....	75,000	2½% for year ending 31-10-08	Howarth Erskine, Ltd.	57.50	62.50
			6,000	100	....		7% for year ending 31-10-08	" " 7% Pref.	90.00	92.50
1896	$1,000,000	1,000,000	6,000	100	100	40,600	12% for year ending 31-12-09	Katz Brothers, Ltd. Deferred	....	125.00
			4,000	100	100		8% " " " "09	" " 8% Cum. Pref	....	nom.
1901	$34,000	34,000	3,400	10	10		20% for year ending 31-10-09	Maynard & Co., Ltd.	22.00	22.50
1899	$875,000	875,000	6,000	100	100	175,000	5% for year ending 31/12/09	Riley, Hargreaves & Co., Ltd.	70.00	75.00
			2,750	100	100		7% for year ending 31/12/09	" " " " 7% Pref	100.00	....
1903	$600,000	250,000	25,000n	10	10		10% for year ending 30-6-09	Singapore Cold Storage Co., Ltd	15.00	....
1891	$30,000	30,000	600	50	50	23,000	10% for year ending 31-7-09	Singapore Dispensary Ltd.	52.50	54.00
1884	$200,000	200,000	2,000	100	100	75,000	15% for year ending 31-12-09	Straits Ice Co., Ltd	155.00	165.00
1890	$500,000	498,000	4,980	100	100	760,000q	10% for half yr. end 30-9-09	Straits Steam Ship Co., Ltd	225.00	....
1887	$3,000,000	3,000,000	3,000,000	10	10	130,000r 1,222,409	10% & 5% bon. for yr. end. 30/9/09	Straits Trading Co., Ltd.	59.00	60.00

DEBENTURES

Name	Buyers	
Howarth Erskine, Ltd. 6% .... $ 600,000	....	par.
Riley, Hargreaves & Co., Ltd. 6%, 284,000	1%	3% p.
Singapore Electric Tramways, Co., Ltd. 5% £350,000	....	....
Singapore Municipal 5% 1,878,000	....	nom.
" " 4½% of 1907 ... 1,600,000	7%	8% p.
" " 4½% of 1909 ... 1,000,000	6%	7% p.
" 4% 602,900	....	7% d.

a { 152,800 unissued; 43,949 6% debenture
b 2,500 unissued
c 5,100 "
d 20,000 "
e { 54,500 £1 Prefs. issued; 45,500 £1 " unissued; 100,000 5/- Ord. "
f 6,250 unissued
g 3,300 "
h 12,993 "
i 5,000 "
j £40,000 6% Debentures 22,000 unissued
k 75,000 unissued
l 94,000 "
m 35,000 "
n 20,000 unissued
o 175,000 unissued "A" shares
p Sundry Reserves.
q "
r 7,500 unissued
s 20,000 "
t 2,268 9/- paid shares
u 50,220 unissued
v 16,756 "
w 4,880 "
x 15,000 "
y 20 unissued
z 20,000 "
a* 221 7½% Debentures
b* 10,000 unissued
c* 8,550 "
d* 5,000 unissued
e* 25,000 "
f* 10,000 "
g* 30,000 "
h* 7,500 "
i* £10,000 Convertible 6% Debentures issued £10,000 do. unissued
j* 5,000 unissued
k* 20,000 "
l* 15,000 "
m* 7,000 "
n* 20,000 "
o* 5,000 "
p* 500,000 "
q* 15,000 "
r* 75,000 "
s* 15,000 unissued
t* 100,000 "
u* 262,500 "
v* 10,000 "
w‡ 5,000 "
x‡ 30,000 "
y‡ 30,000 "
z‡ 10,000 "
a‡ 10,000 "
b‡ 10,000 "
c‡ 30,000 "
d‡ 5,000 "
e‡ 50,000 "
f‡ 70,000 "
g‡ 35,000 "
h‡ 6% Deb. Stock Convertible.
i‡ 7,143 unissued.

YOKOHAMA SHARE QUOTATIONS

COURTESY A. C. HUTTON POTTS, SHARE AND GENERAL BROKER, YOKOHAMA, MAY 21ST, 1910.

STOCKS.	CAPITAL.	NO. OF SHARES.	ISSUE VALUE.	AMOUNT PAID UP.	RESERVE FUND.	AT WORKING ACCOUNT OR CARRIED FORWARD.	DATE.	LAST DIVIDEND.	FOR TERM.	CLOSING QUOTATION.
Brett & Co., Ltd.	-Y- 28,000	2,800	-Y- 10	-Y- 10			31-12-08	12½%	for 1 year	10 Sales
Club Hotel, Ltd.	185,000	1,850	100	100	3,000	-Y- 768.96	31-3-08	7%	for 1 year	60 Buyers
Grand Hotel, Ltd.	500,000	5,000	100	100	10,000		31-12-09	2½%	for ½ year	100 Sales
Helm Bros., Ltd.	186,000	3,720	50	50	25,000	-Y- 6,395.55	31-12-08	17½%	for 1 year	80 Sales.
Langfeldt & Co., Ltd.	100,000	2,000	50	50	12,500	3,653.92	31-12-09	10%	for 1 year	57:50 Buyers.
C. Nickel & Co., Ltd. †	500,000	20,000	25	25		36,332.37	31-10-09	20%	for 1 year	50 Sales
Thwaites, Limited	100,000	2,000	50	50			First Year	—	—	
Yokohama Engine and Iron Works *	500,000	10,000	50	50	50,000	-Y- 29,421.19	31-5-08	10%	for 1 year	50 Nominal
Oriental Hotel, Ltd., Ordinary }	250,000	3,000	50	50	306,090.49		31-8-07	12%	for 1 year	50 Sales.
Oriental Hotel, Ltd., Preference }		2,000	50	50				8%	for 1 year	52:50 Sales
The Union Estate and Investment Co., Ltd. ‡	1,000,000	10,000	100	100	6,000.00	1,753.03	30-9-08	7%	for 1 year	100 Nominal.

† 285,000 unissued.
‡ 475,000 unissued.

*-Y- 390,000 issued.
110,000 unissued.

DEBENTURE LOANS.	AMOUNT OF LOAN.	FACE VALUE OF DEBENTURES.	RATE OF INTEREST.	INTEREST PAYABLE.	CLOSING QUOTATION.
Brett & Company, Limited	11,500.00	100.00	7%	1 June and 1 Dec.	95 Sales.
Yokohama United Club	250,000.00	100.00	7%	30 June and 31 Dec.	100 Sales.
Oriental Hotel, Limited	350,000.00	100.00	8%	1 April and 1 Oct.	103.50 Sales.
Union Estate and Investment Co., Limited	250,000.00	100.00	6%	30 June and 31 Dec.	95 Sellers.

JAPANESE STOCKS.	FACE VALUE.	AMOUNT PAID UP.	LAST DIVIDEND.	DIVIDEND PAYABLE.	CLOSING QUOTATION.
Bonds & Debentures.					
Exchequer Bonds 2nd issue	-Y-100	-Y-100	5%	March and Sept.	-Y-100.00
Exchequer Bonds 3rd issue	100	100	5%	March and Sept.	,, 100.00
Consolidated Bonds (Seiri)	100	100	5%	June and Dec.	,, 101.00
War Bonds (Gunji)	100	100	5%	June and Dec.	,, 101.00
Imperial 5% Bonds	100	100	5%	March and Sept.	,, 99.80
Special 5% Bonds (issued 1906)	100	100	5%	June and Dec.	,, 101.00
Yokohama Water Works Bonds	100	100	6%	June and Dec.	,, 105.50
Yokohama City Public Loan Bonds	100	100	6%	March and Sept.	,, 104.50
Osaka City Harbour Construction Bonds	100	100	6%	June and Dec.	,, 105.00
Osaka City Public Loan Bonds	100	100	6%	June and Dec.	,, 105.00
Kawasaki Dock Yards Co.'s Debentures	100	100	7%	June and Dec.	,, 105.00
Tokyo Race Associations "	500	500	30%	June and Dec.	,, 200.00
Railways & Electric Trams.					
Tokyo Railway Company, Limited	50	50	5.2|5%	June and Dec.	,, 72.15
Yokohama Electric Tramway Company, Limited	50	50	6%	July and Jan.	,, 51.00
Keihin Electric Tramway Company, Limited	50	50	6%	June and Dec.	,, 56.95
Southern Manchurian Railway Co., Ltd.	100	20	6%	June and Dec.	,, 48.00
Hanshin Electric Tramway Co., Ltd.	50	50	12%	May and Nov.	,, 117.50
Cotton Spinnings.					
Kanegafuchi Cotton Spinning Company, Limited	50	50	14%	July and Jan.	,, 110.40
Fuji Gassed-yarn Company, Limited	50	50	14%	July and Jan.	,, 104.15
Tokyo Cotton Spinning Company, Limited	50	50	8%	July and Jan.	,, 47.80
Imperial Hemp Weaving Company, Limited	50	50	12%	July and Jan.	,, 67.45
Nisshin Boseki Kabushiki Kaisha	50	17½	7%	——	,, 16.00
Sugar & Beer Cos.					
Dai-nippon Sugar Refinery Company, Limited	50	50	....	May and Nov.	,, 20.00
Ensuiko Sugar Refinery Company, Limited	50	20	20%	June and Dec.	,, 52.20
Dai-nippon Beer Company, Limited	50	50	12%	July and Jan.	,, 82.05
Kirin Brewery Company, Limited	50	50	7%	July and Jan.	,, 53.00
Docks & Steamships.					
Yokohama Dock Company, Limited	50	33	12%	June and Dec.	,, 61.00
Uraga Dock Company, Limited	50	50	....	July and Jan.	,, 8.00
Kawasaki Dockyard Company, Limited	50	50	12½%	Feb. and Aug.	,, 57.00
Nippon Yusen Kaisha	50	50	10%	May and Nov.	,, 92.80
Hokkaido Tanko S. S. Company, Limited	50	50	5%	July and Jan.	,, 24.30
Miscellaneous.					
Tokyo Electric Light Company, Limited	50	50	12%	June and Dec.	,, 116.20
Tokyo Gas Company, Limited	50	50	13%	July and Jan.	, 109.00
Yokohama Union Electric Light Company, Limited	50	50	14%	June and Dec.	,, 107.00
Fuji Paper Mills	50	50	6%	June and Dec.	,, 33.95
Otaru Timber Company, Limited	50	50	....	March and Sept.	,, 8.00
Hoden Petroleum Company, Limited	50	50	20%	April and Oct.	,, 71.50
Tokyo Rope Manufacturing Company, Limited	50	50	18%	June and Dec.	,, 115.00
Japan Horse Improvement Company, Limited	50	50	....	March and Sept.	,, 15.00
Tokyo Stock Exchange Company	50	50	15 1|5%	June and Dec.	,, 229.80
Osaka Electric Light Company, Limited	50	50	16%	July and Jan.	,, 136.50
Kobe Electric Light Company, Limited	50	50	14%	July and Jan.	,, 103.00

BANGKOK SHARE QUOTATIONS

(COURTESY MESSRS. EDWARDS & CO., BANGKOK, SIAM.)

NAME.	BUYERS.	SELLERS.	LAST SALES.	ESTABLISHED.	CAPITAL.	NO. OF SHARES.	ISSUE VALUE.	AMOUNT PAID UP.	RESERVE FUND.	LAST DIVIDEND.
Siam Electricity Co., Ltd.	Tcs. 375	Tcs. 380	Tcs. 380	1901	£ 300,000	30,000	£ 10—	£ 300.000	Tcs. 491,338	12% Tcs. 4 bon.
Paknam Railway Co., Ltd.	,, 200	,, —	,, 220	1893	Tcs. 400,000	5,000	Tcs. 80	Tcs. 400,000	,, [illegible]7,566	8%
Siam Tramway Co., Ltd.	,, —	,, —	,, 108	1905	,, 1,450,000 {	6250 Shares 7250 Deb. 1000 P. Shares	,, 100	} ,, 2,230,000	,, 1,875	—
Meklong Railway Co., Ltd.	,, —	,, 106	,, 105	1907	,, 2,230,000	22,300	,, 100	,, 223,000	,, 28,000	5%
Bangkok Manufact. Co., Ltd.	,, —	,, —	,, 132	1898	,, 400,000	4.000	,, 100	,, 400,000	,, 60,000	{ 7% per for 6 months
Bangkok Dock Co., Ltd.	,, —	,, 135	,, 135	1865	,, 1,000,000	10,000	,, 100	,, 950,000	,, 220,000	}
Siam Steam Packet Co.	,, —	,, 57	Par	1898	,, 190 000	3,800	,, 50	,, 190,000	,, 34,000	5%
Siam Commercial Bank	,, 1,0[illegible]0	,, —	Par	1906	,, 3,000,000	3.000	,, 1,000	,, 3,000.000	,, 338,850	8%
Menam Motor Boat Co.	,, —	,, 100	,, 100	1905	,, 200,000	2,000	,, 100	,, 200,000	—	6%
Transport Co., Motor.	,, —	,, 90	,, 100	1906	,, 200.000	2,000	,, 100	,, 200,000	—	—
Jenderata Rubber Co *	,, —	,, £8.—	,, 90 (for six calls)	1906	£ 40,000	4,000	£ 10	£ 7.-paid	—	—
Bagan Rubber Co.	,, —	,, —	,, —	1907	Tcs. 300 000	3,000	Tcs 100	Tcs. 40 per share	—	—
Siam Steam Navigation Co., Ltd.	,, —	,, —	,, —	1909	,, 2,000,000	10,000	,, 200	—	,, 10,000	—
Siam Stone Works, Ltd.	,, —	,, 90	100	1909	,, 350,000	3,500	,, 100	,, 350,000	—	6% half year
Kombok Rubber Co.	,, —	,, —	19	1906	$ 300,000	30,000	$ 100	$7, per Share	—	—

PHILIPPINE SHARE REPORT

MAY 10, 1910

NAME	WHEN INCORPORATED	AUTHORIZED CAPITAL	ISSUE VALUE OF SHARE	NO. OF SHARES	SUBSCRIBED	PAID UP	RESERVE	WORKING %	DATE	LAST DIVIDEND	CLOSING QUOTATIONS
American Drug Store	1908	₱ 100,000	₱1,000	100	40	₱1,000	......	₱ 5,000	Jan. 4, 1909..	......	No sellers.
*Banco Español Filipino	1851	3,000,000	200	15,000	8,439	200	₱225,000	......	......	7% for year 1909....	200 buyers
Benguet Consolidated Mining Co.	1903	2,000,000	2	1,000,000	495,000	2	......	38,000	Feb. 2, 1909..	......	₱1.00.
Benguet Commercial Co., Ltd.	1908	200,000	10	20,000	7,360	10	......	......	......	7% for year 1907....	₱10.
Bua Mining Co.	1905	300,000	100	3,000	2,620	100	......	12,900	Dec. 5 1909.	......	₱100.
Cadwallader-Gibson Lumber Co.	1908	1,000,000	100	10,000	8,650	100	......	......	......	......	No sellers
*Camote-Clayton Mining Co.	1909	400,000	10	40,000	20,000	10	......	......	......	......	₱10.
*Compania Maritima	......	1,018,000	200	5,090	5,090	200	......	......	......	......	₱50 sales
*El Varadero de Manila	......	350,000	100	3,500	3,500	100	......	......	......	......	Sellers 70
Electrical Supply Co., Inc.	1909	100,000	100	11,000	500	72	......	......	......	......	No sellers
Export & Import Lumber Co.	......	200,000	200	1,000	1,000	200	......	......	......	......	No sellers.
*Fabrica de Hielo de Manila	1894	350,000	50	7,000	7,000	50	......	......	......	18% for year 1908...	₱75 sales.
*Germinal Cigar Factory	1900	500,000	500	1,000	1,000	500	₱143,499	639.41	Dec. 31, 1909	15% for year 1909 and 6% on capital......	500 sellers.
H. E. Heacock Co.	1909	100,000	100	1,000	800	100	......	......	......	First year......	No sellers.
*Headquarters Mining Co. (Inc.)	1908	600,000	10	60,000	35,000	10	......	......	......	......	₱10 buyers.
Insular Lumber Co.	1907	2,000,000	200	10,000	9,000	200	......	......	......	......	No sellers.
Juan Seiboth Co., Ltd.	1908	150,000	20	7,500	500	20	......	......	......	First year......	......
*La Concha Button Factory	1905	75,000	100	750	750	100	......	......	......	15% for year 1909...	₱110 sellers.
Lambert, Springer Co.	1908	200,000	1,000	200	80	1,000	......	......	......	......	No sellers.
Luzon Stevedoring Co.	1909	250,000	25	10,000	4,200	25	......	......	Sept. 15, 1909	15%......	₱30.
Mindanao Herald Publishing Co.	1907	15,000	100	150	75	100	......	......	Dec. 31, 1908.	½ of 1% interim for 1908	No sellers.
Newspaper Publishing Co.	1907	400,000	100	4,000	3,740	100	......	......	......	......	......
Minas Carbon de Batan	1902	1,000,000	200	5,000	1,523	200	......	136,812	......	......	200
Walter E. Olsen Co., Inc.	1909	500,000	100	5,000	2,033	100	......	......	......	First year......	No sellers.
Paracale Gold Dredging Co.	1907	£10,000	£1	10,000	9,000	£1	......	......	......	......	No sellers.
Palomar Park Amusement Co.	1908	300,000	......	300,000	60,312	.50	......	......	......	......	₱1.
Phil. Hemp Machine Co., Ltd.	1907	1,000,000	100	10,000	8,500	100	......	......	......	......	₱100
Philippine Publishing Co.	1907	600,000	200	3,000	2,181	200	......	......	Mar. 1st, 1909	₱3 a share for 1908..	₱50
Port Banga Lumber Co.	1908	100,000	100	1,000	934	100	None.	40,000	First Saturday in January..	None......	No sellers.
The Philippine Gold Dredging Co.	1907	200,000	10	20,000	20,000	10	......	......	......	......	No sellers.
*Philippine Co., Ltd.	......	750,000	10	7,500	7,500	10	......	......	......	......	₱5 buyers.
Philippine Rosin & Turpentine Co.	......	150,000	1	150,000	70,000	1	......	......	......	First year......	......
Philippine Exploration Co.	1908	2,000,000	10	200,000	90,000	10	......	......	......	......	₱15 buyers
The Rosenstock Pub. Co.	1908	75,000	10	7,500	6,000	10	......	......	......	......	No sellers.
*San Nicolas Iron Works	......	300,000	500	600	600	500	......	......	......	......	₱200 sellers.
San Mauricio Gold Mining Co.	1908	4,000,000	200	20,000	.....	......	......		......	First year......	₱200.
Tarlac Railway Co.	1906	150,000	100	1,500	1,500	100	......	₱23,329	June 30, 1908.	......	No sellers.
Union Hemp Machine Co.	1909	50,000	10	5,000	2,600	10	......	......	......	......	No sellers.
Zamboanga Cold Storage Co.	1903	40,000	100	400	200	100	₱8,500	......	May 1st, 1909.	20%......	₱120.

* John T. Macleod's share list

PHILIPPINE BONDS

	DATED	AUTHORIZED	ISSUED	OUTSTANDING	PAR VALUE	RATE OF INT.	WHEN PAYABLE	LAST QUOTATION
Philippine Friar Land Bonds	Feb. 1st, 1904	$7,000,000	$7,000,000	$7,000,000	$ 100	4%	Feb. 1, 1914	104[illegible]
Public Works and Permanent Improvement Bonds	March 1, 1905	$5,000,000	$2,500,000	$2,500,000	$ 100	4%	March 1, 1915	104[illegible]
Do.	Feb. 1, 1906	......	$1,000,000	$1,000,000	$ 100	4%	Feb. 1, 1916	104[illegible]
Manila Sewer and Water Works Improvement Bonds	June 1, 1905	$4,000,000	$1,000,000	$1,000,000	$ 100	4%	June 1, 1915	104[illegible]
Do.	Jan. 2, 1907	......	$2,000,000	$2,000,000	$ 100	4%	Jan. 2, 1917	104[illegible]
Philippine Railway First Mortgage Four per cent Thirty Year Sinking Fund Gold Bonds	July 1, 1907	$15,000,000	$5,736,000	$5,736,000	$1000	4%	July 1, 1937	97

*Payment of interest guaranteed until maturity or redemption by the Philippine Government.

Professional Cards

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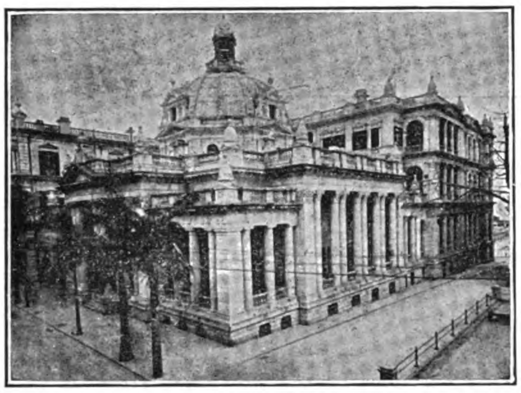

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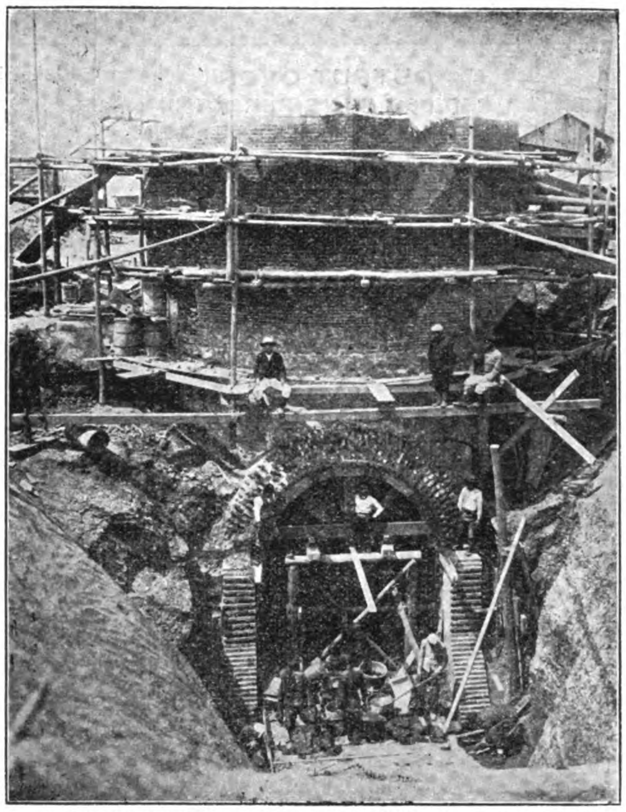

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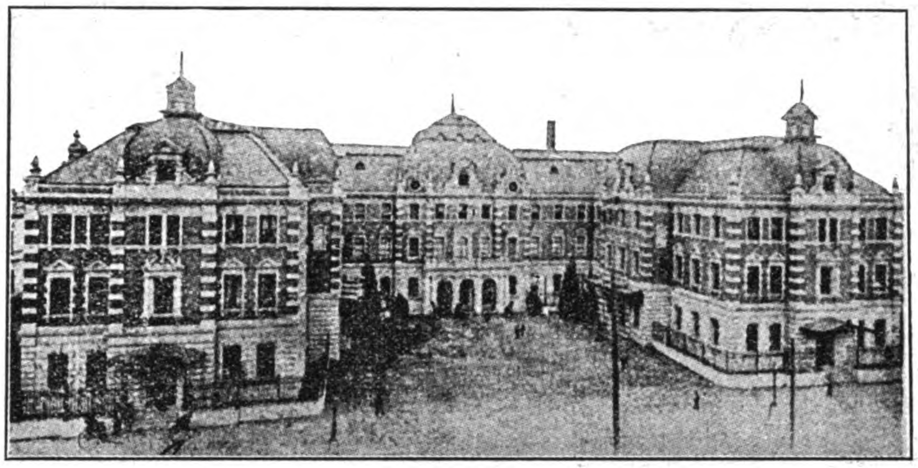

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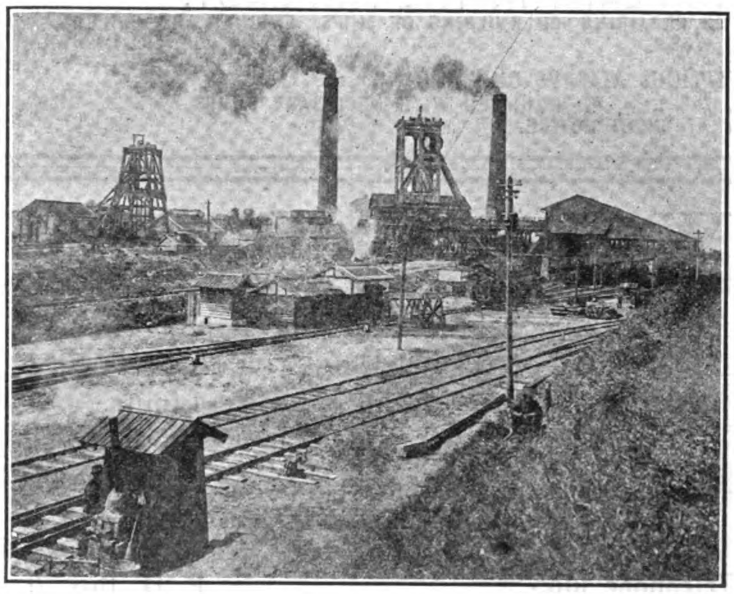

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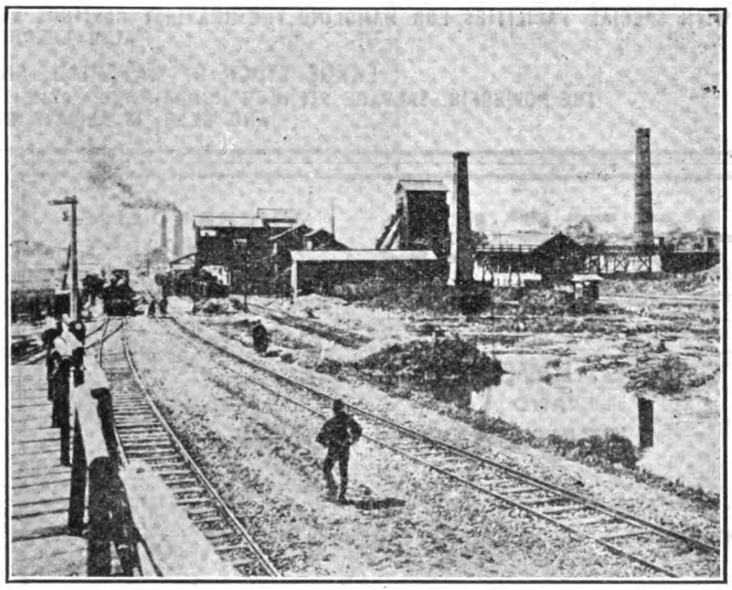

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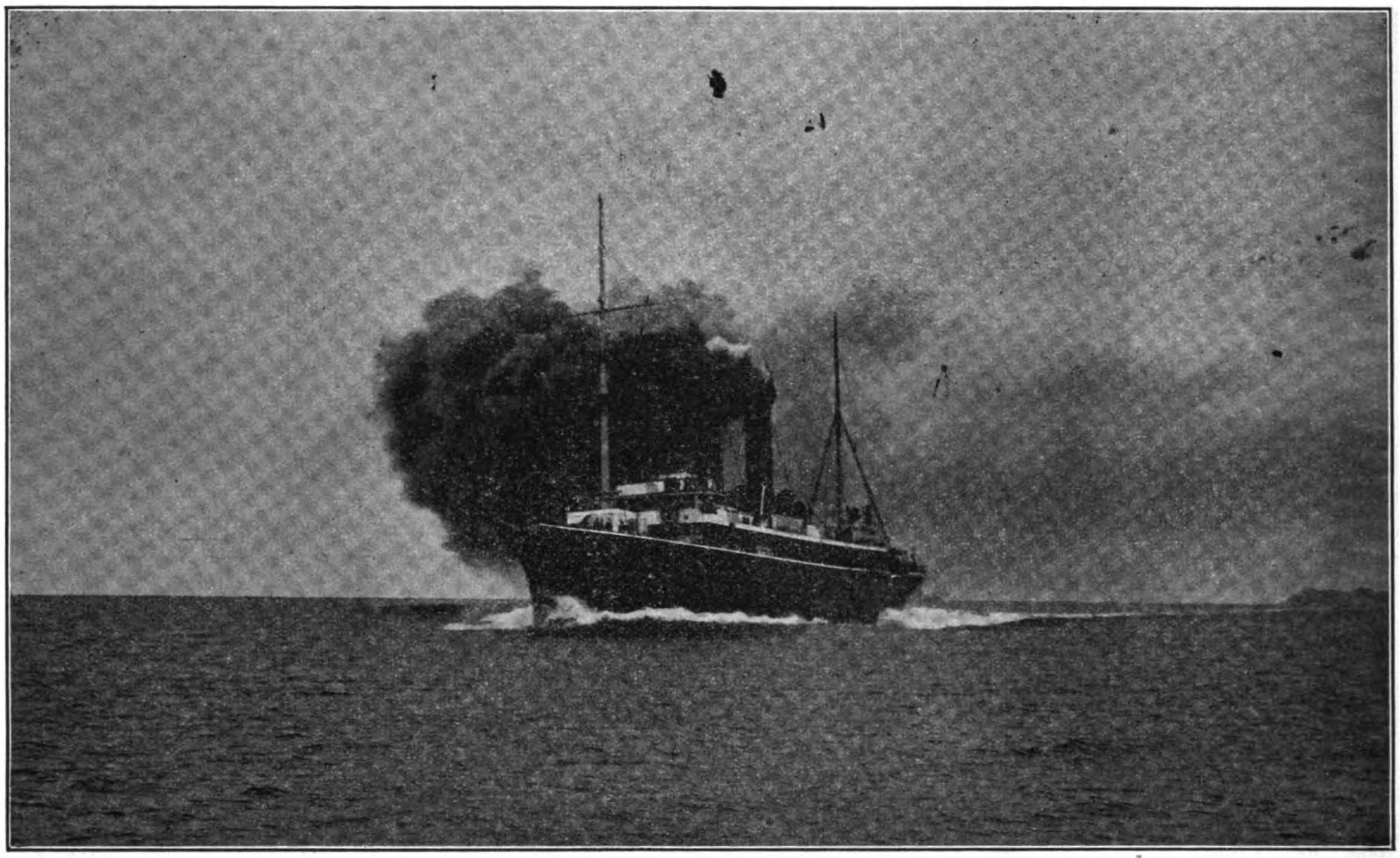

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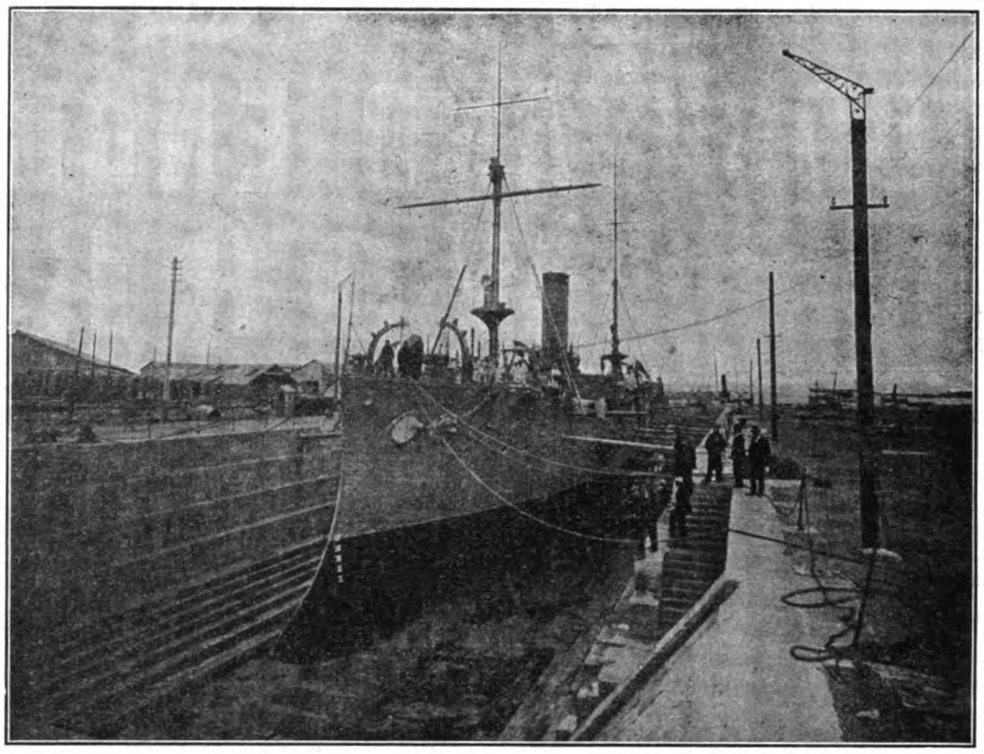

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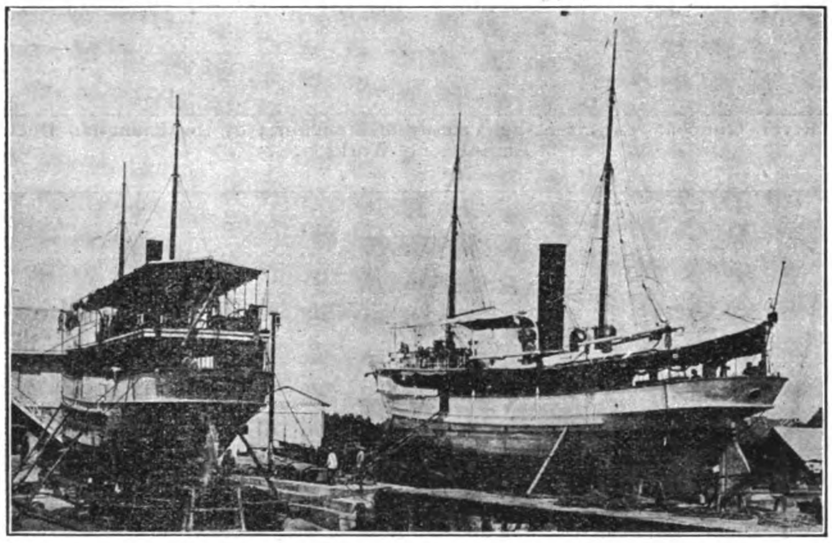

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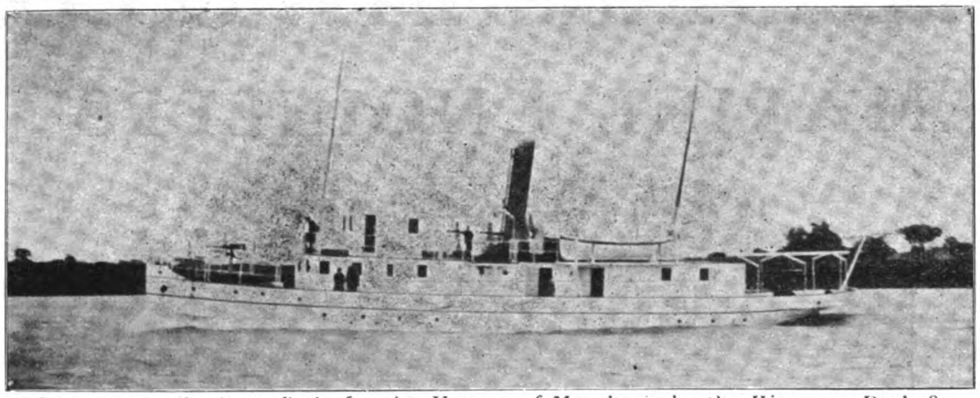

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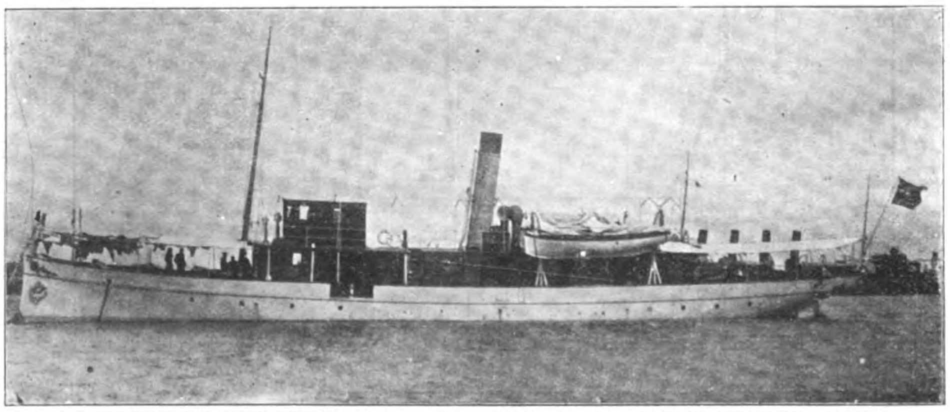

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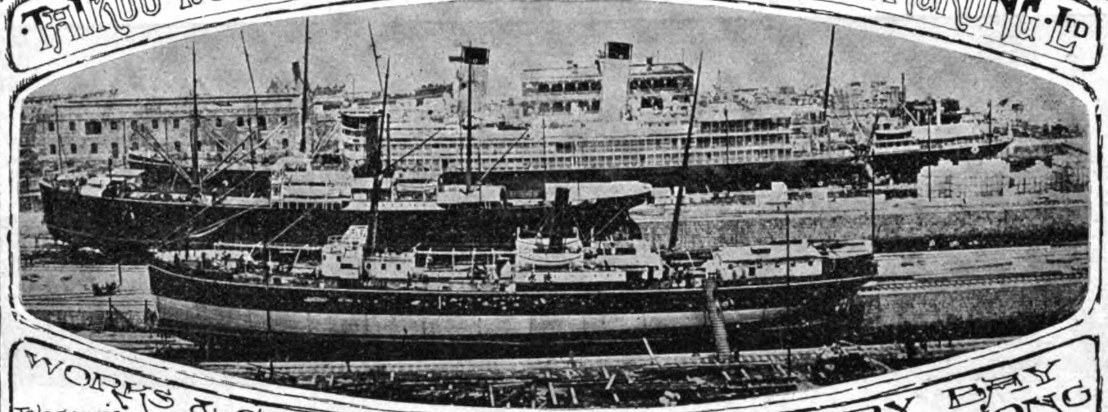

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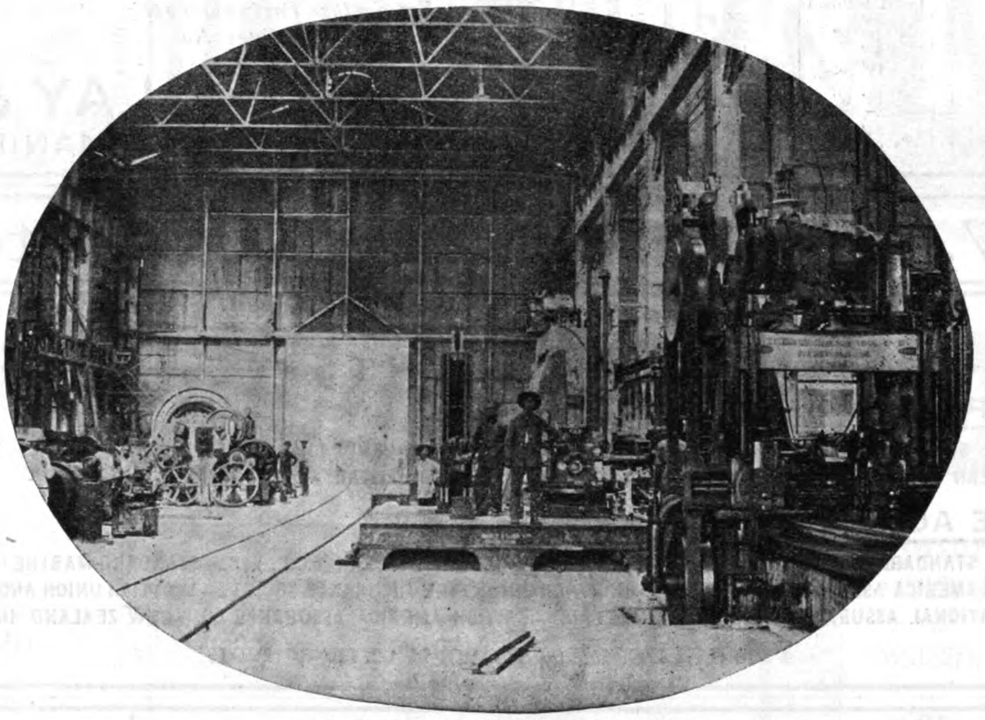

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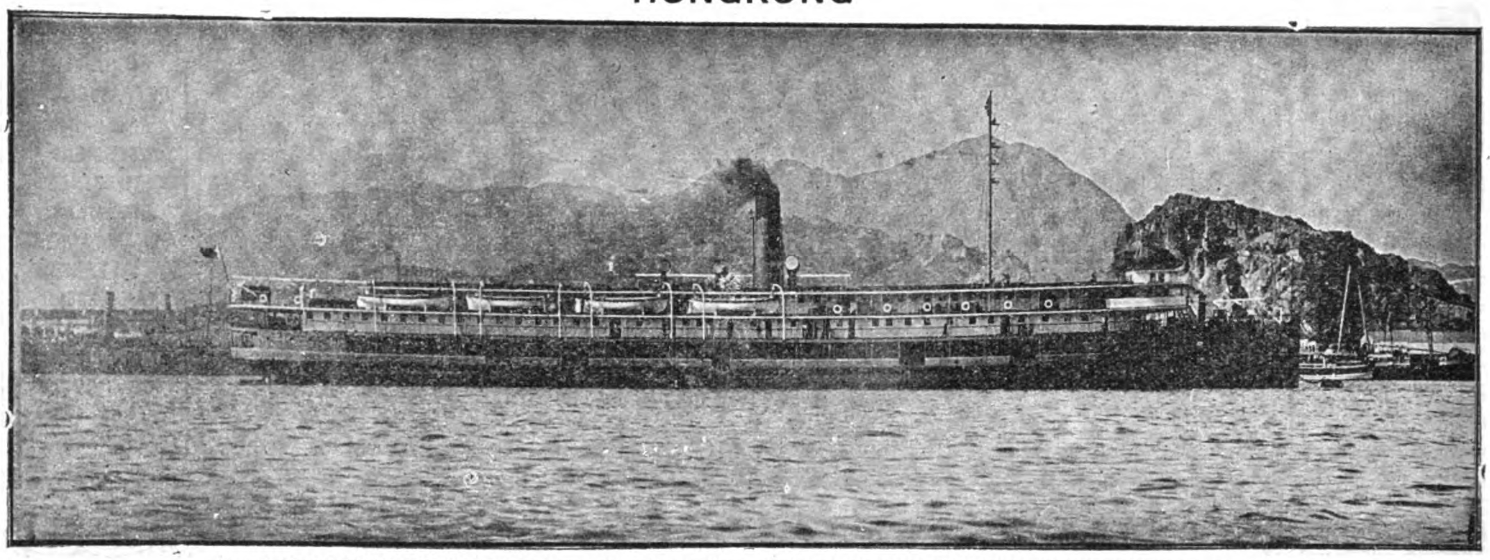

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Name of Dock or Slip	*Length on Keel Blocks*	*Entrance Breadth*	*Depth Over Sill at Ordinary Spring Tides*	*Rise of Tide*	
				Springs	*Neaps*
KOWLOON	*Feet*	*Feet*	*Feet*	*Feet*	*Feet*
No. 1 Dock, Kowloon.........	576	86 ft top / 70 ft. bottom	30′	7′ 6″	3
No. 2 Dock, Kowloon	371	74′	18′ 6″	7′ 6″	—
No. 3 Dock, Kowloon.	264	49′ 3″	14′	7′ 6″	—
Patent Slip, No. 1, Kowloon...	240	60′	14′	7′ 6″	—
Patent Slip, No. 2, Kowloon...	220	60′	12′	7′ 6″	—
TAI-KOK-TSUI					
Cosmopolitan Dock...........	466	85′ 6″	20′	7′ 6″	—
ABERDEEN					
Hope Dock	430	84′	23′	7′ 6″	—
Lamont Dock................	333	64′	16′	7′ 6″	—

THE COMPANY'S DOCKS at KOWLOON, TAI-KOK-TSUI and ABERDEEN are in efficient working order, and the attention of Captains and Shipowners is respectfully solicited to the advantages which these Establishments offer for Docking and Repairing Vessels.

For Further Particulars apply at the Offices of the Company, Queen's Buildings, No. 1, New Praya, Hongkong, or to

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Average Breaking Load After Three Tests:

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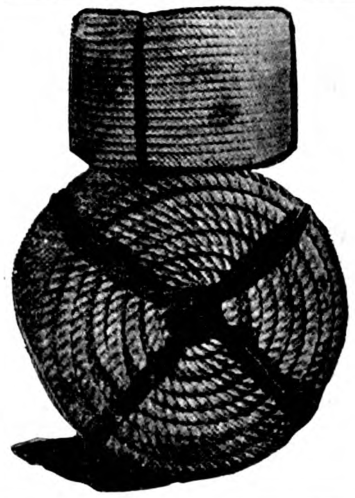

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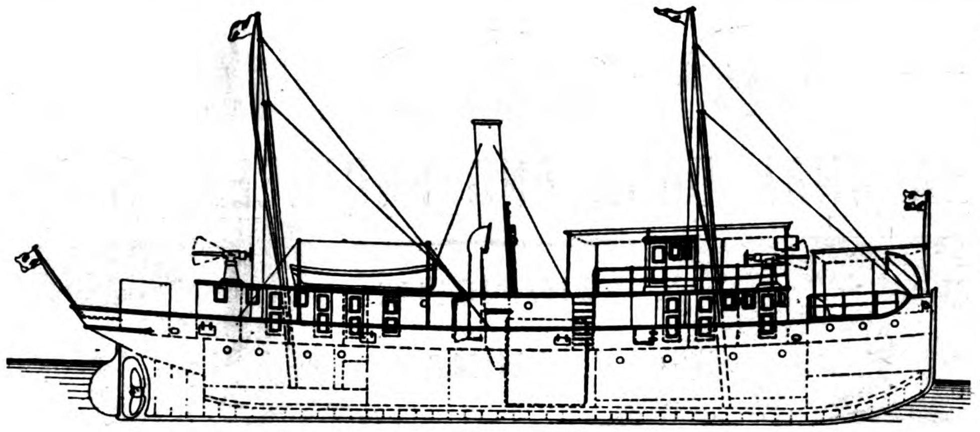

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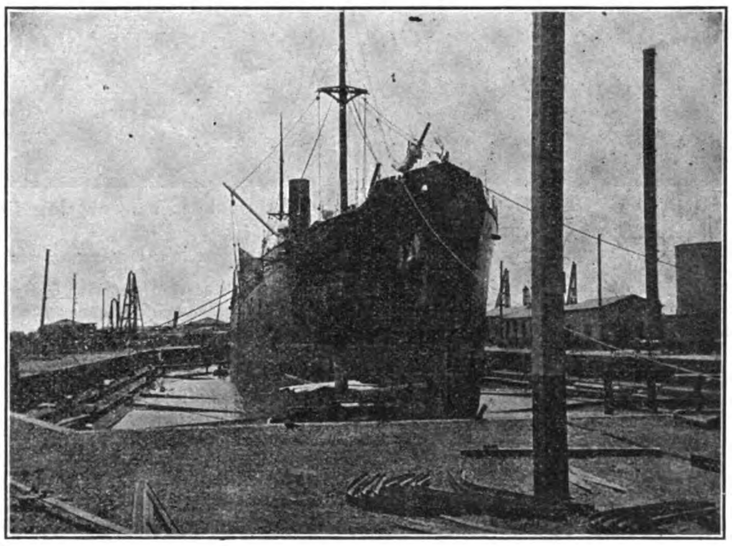

VIEW OF YANGTSZEPOO DOCK

PARTICULARS OF DOCK
LENGTH ON BLOCKS 455'0"
" OVERALL - 469'0"
WIDTH, ENTRANCE 74'6"
" SILL - - 64'6"
DEPTH ON SILL, (H. W. O. S. TIDES) - - - 21'6"
DEPTH ON 3'6" BLOCKS (H. W. O. S. TIDES) 19'6"
PUMPS CAN EMPTY DOCK WITHOUT VESSEL IN, IN 3½ HOURS.
WORKSHOPS LOCATED AT HEAD OF DOCK

OFFICE, DOCK & WORKS, 37 YANGTSZEPOO ROAD, SHANGHAI

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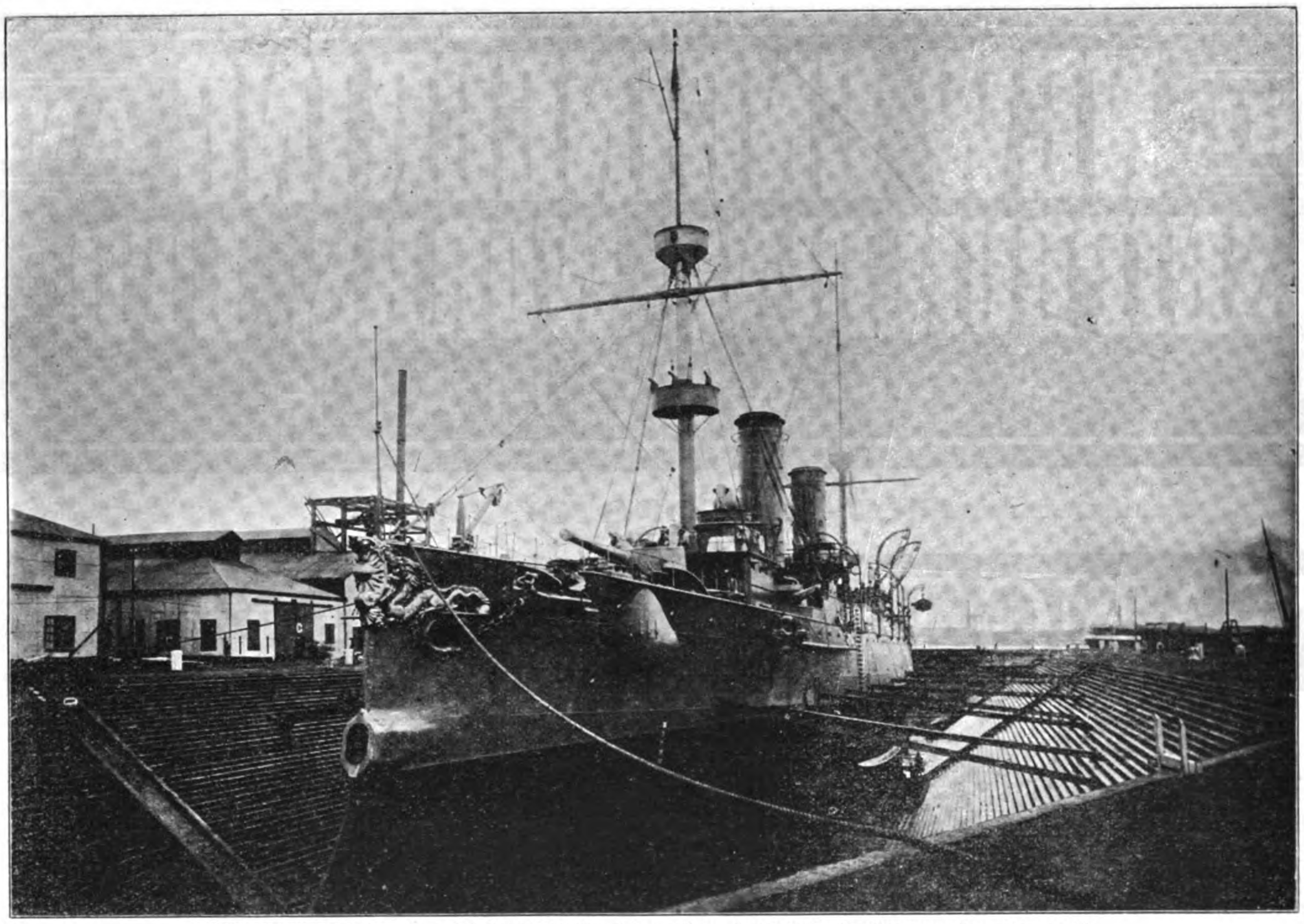

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The Dock charges are very moderate.

The Water Frontage is about 1½ miles in length. Wharves and Pontoons are arranged where steamers can moor during repairs; and slips for hauling up small vessels are provided. Sheer legs capable of lifting 65 tons are placed at the various Docks.

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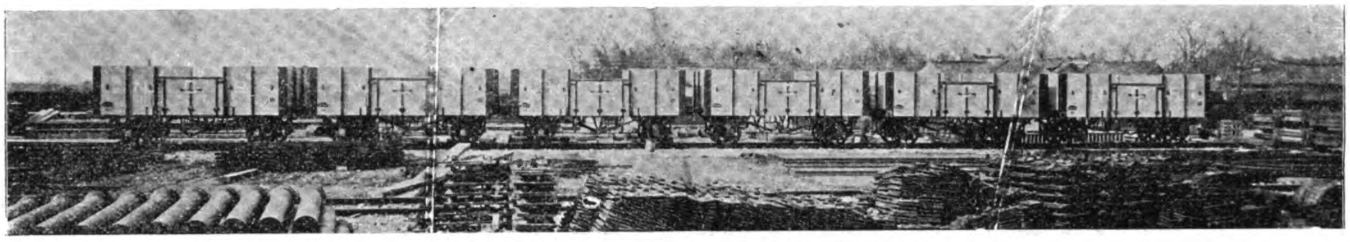

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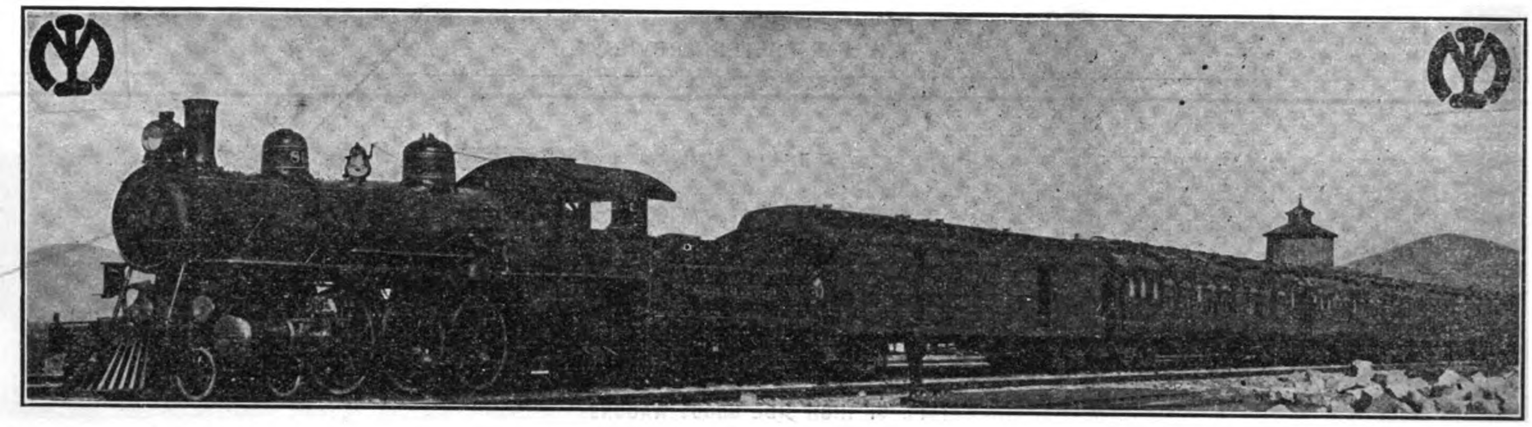

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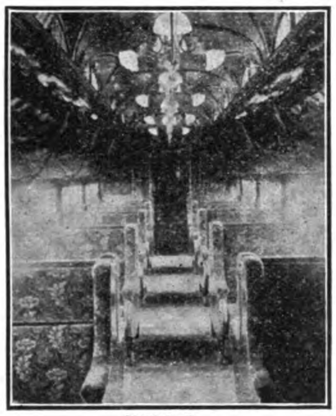

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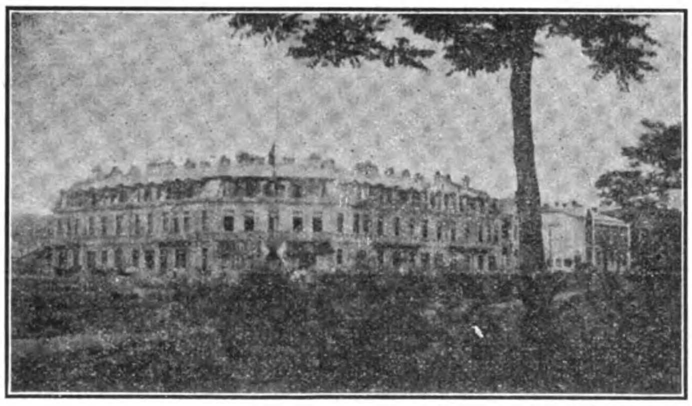

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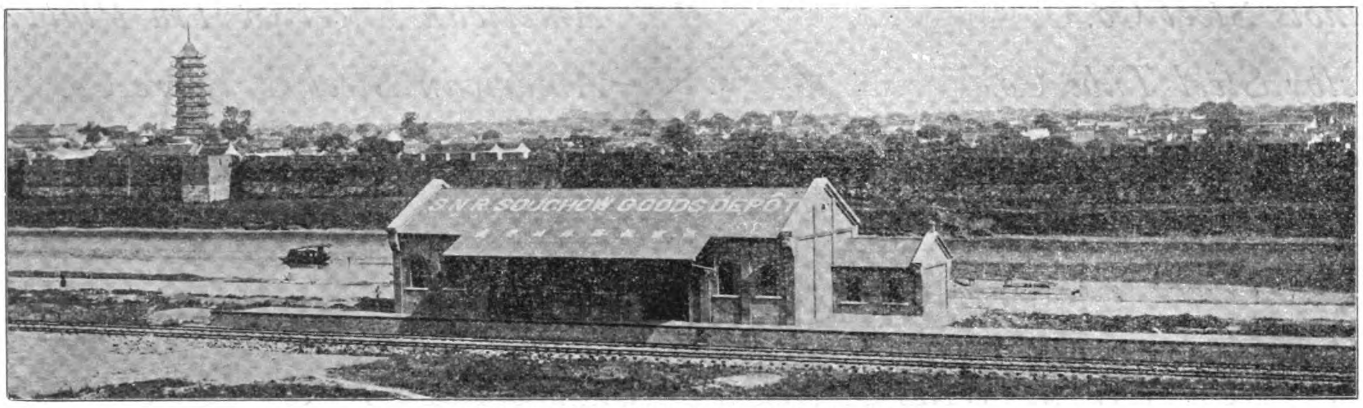

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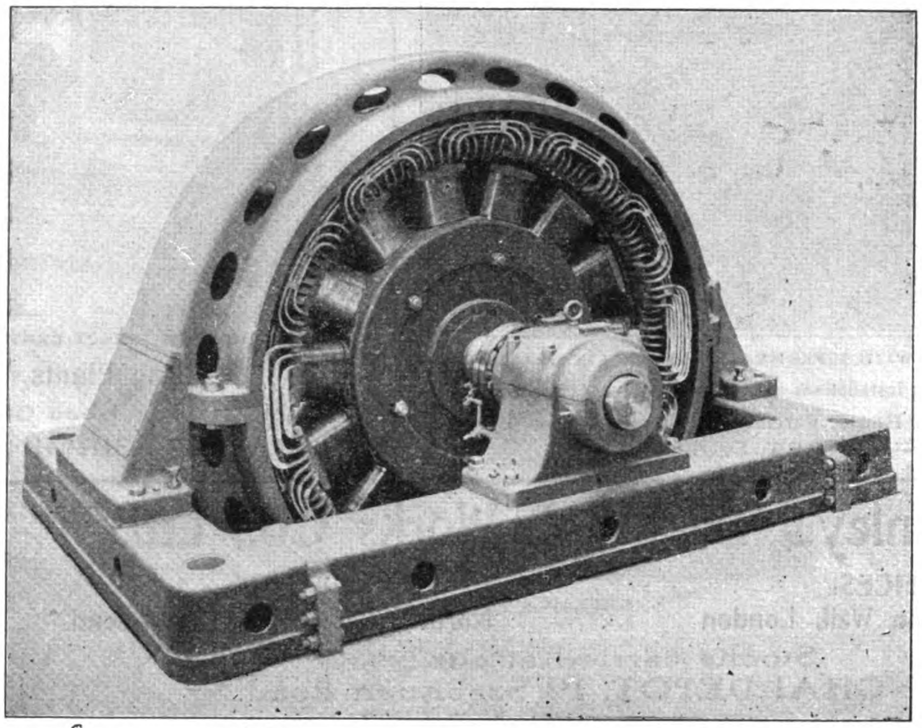

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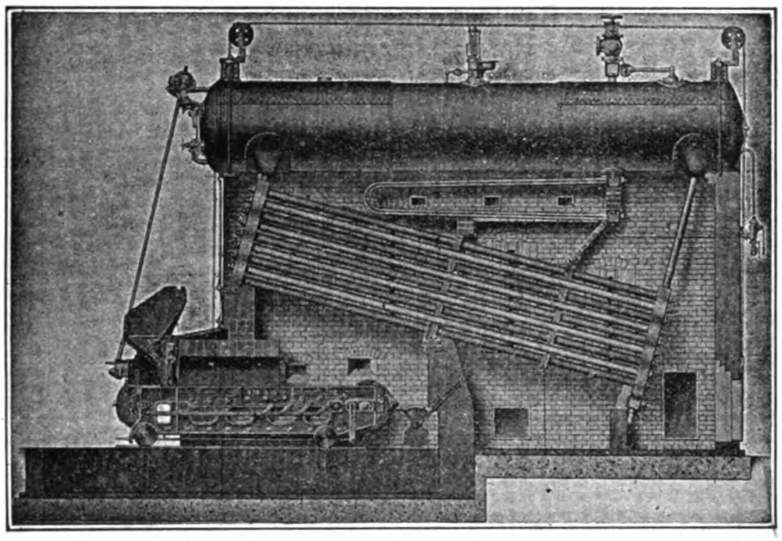

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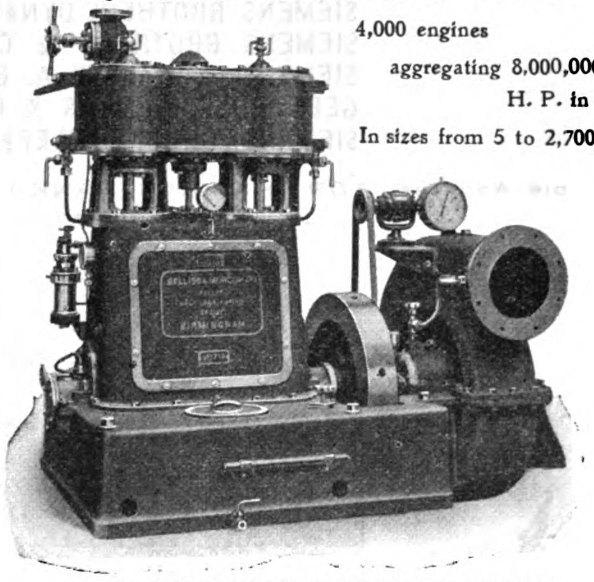

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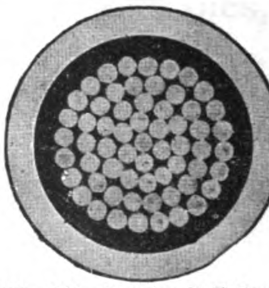

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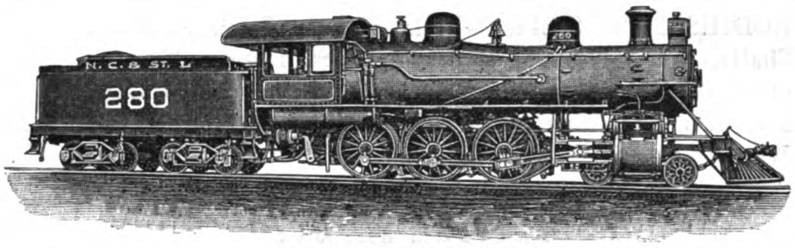

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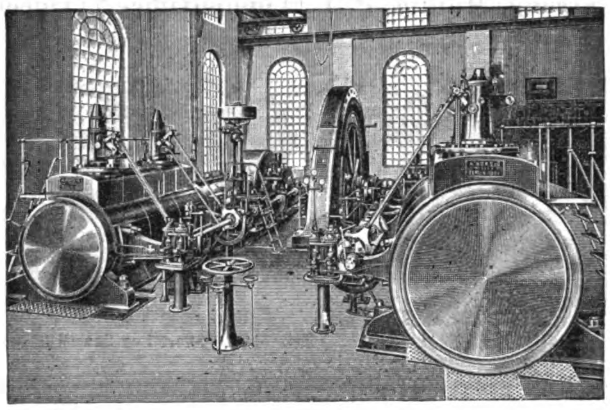
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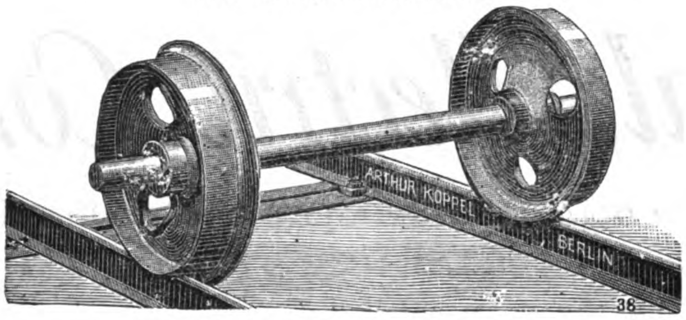

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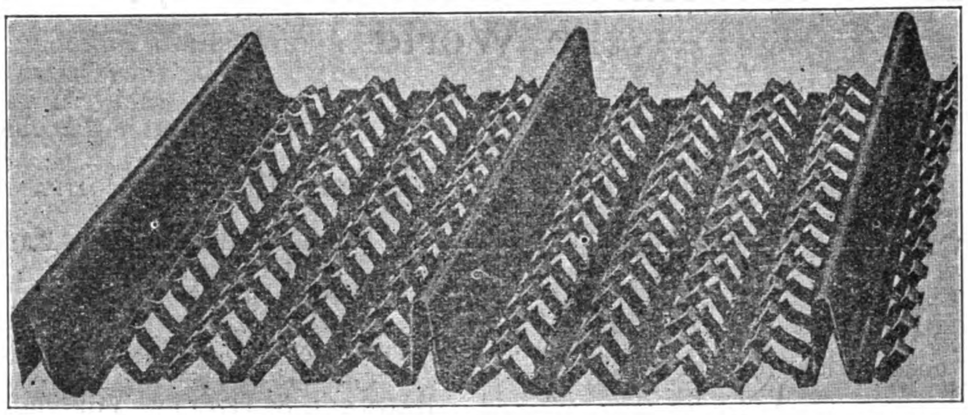
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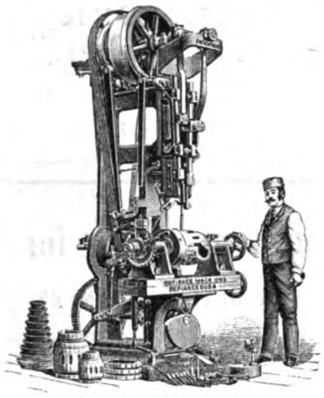

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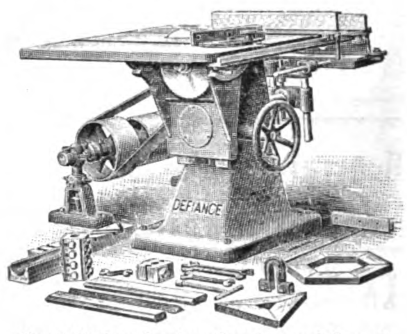

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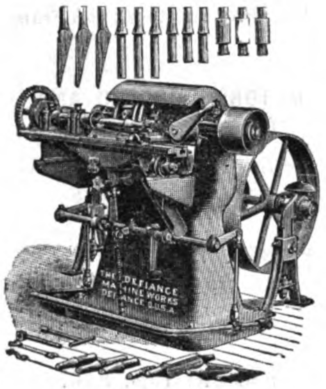
Frank L. Strong, Manila, P. I. | London Office, 71 Queen St. E.C.



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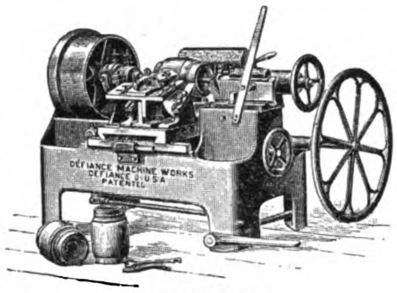

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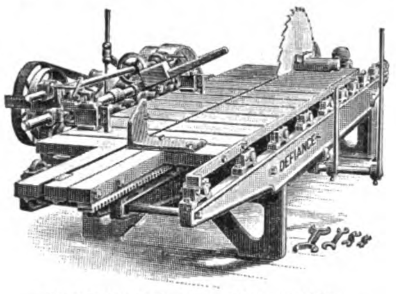

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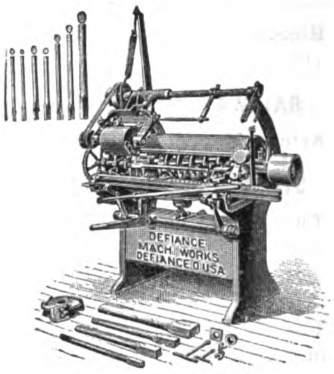

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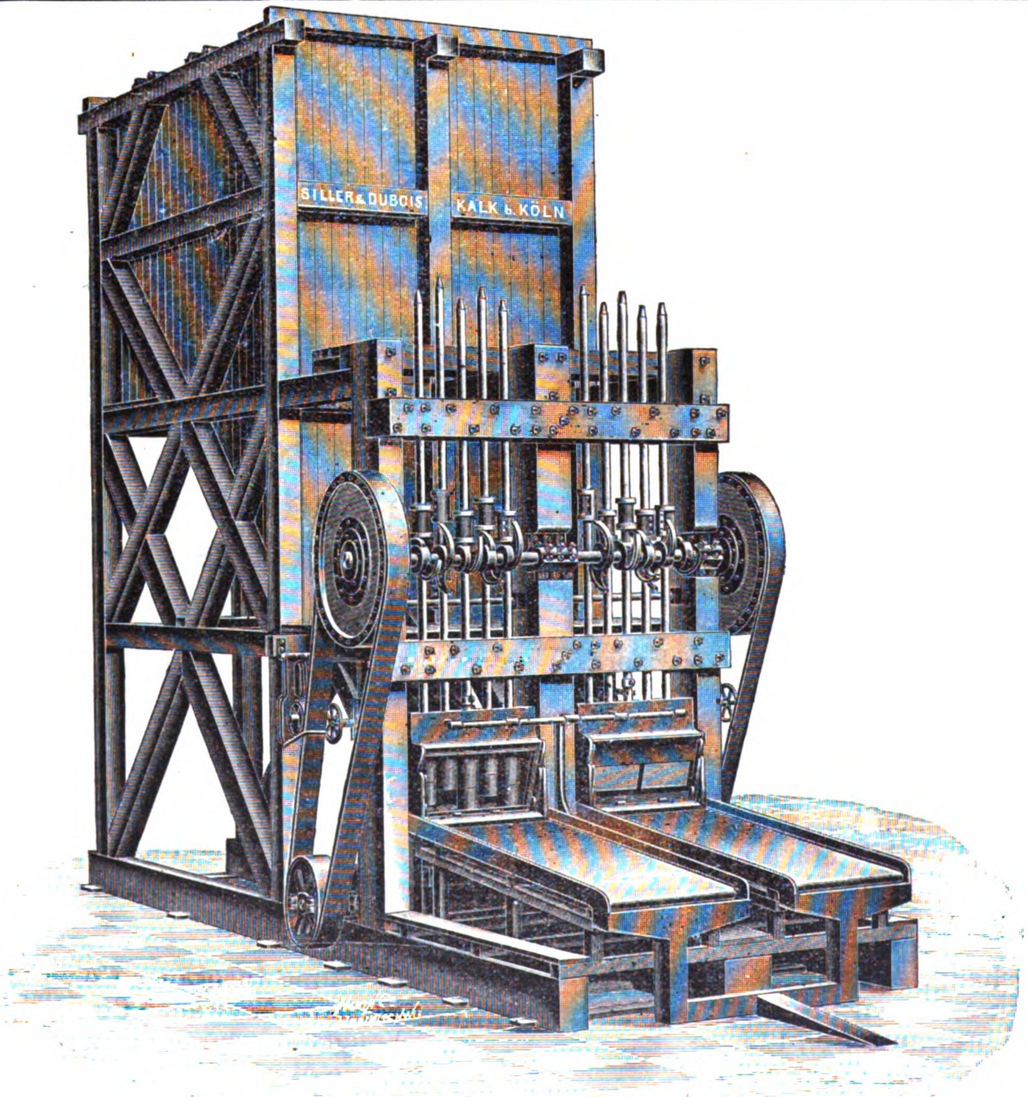

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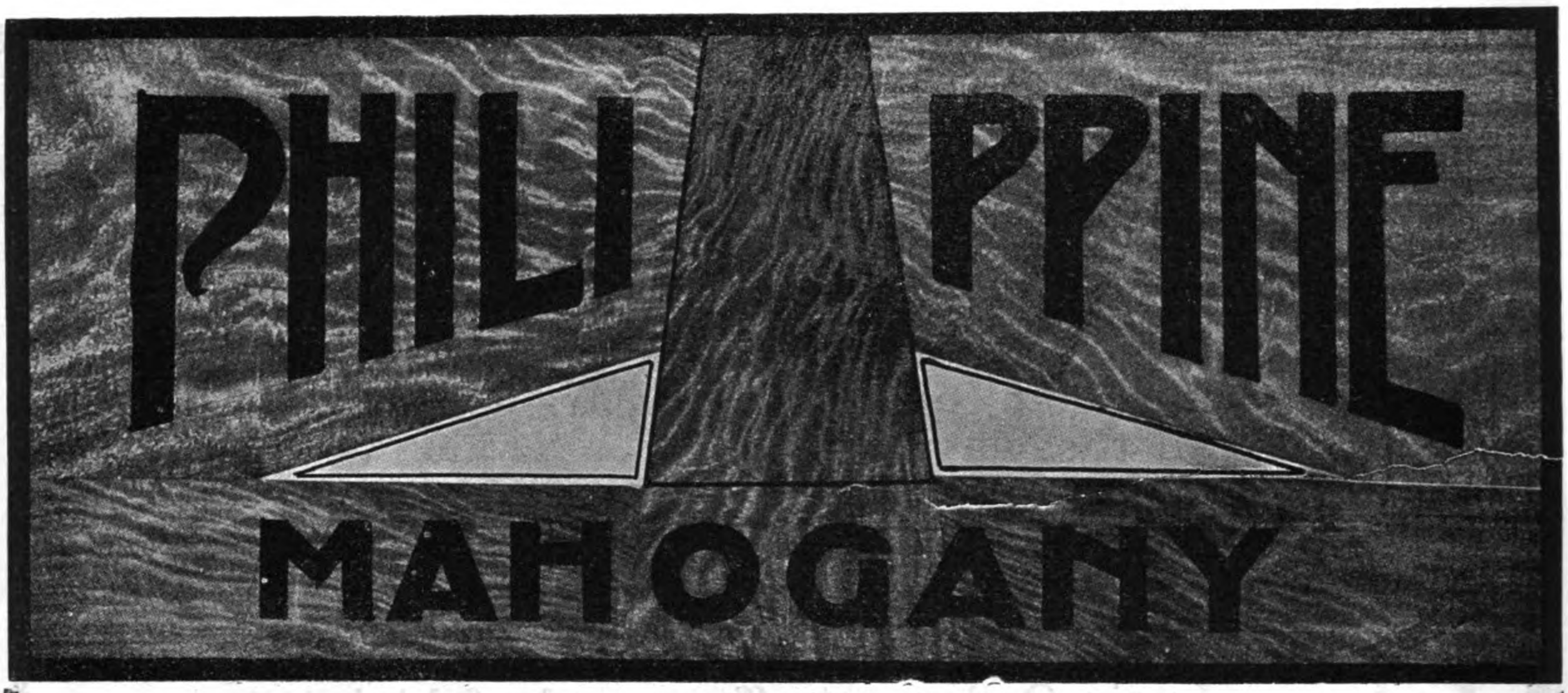

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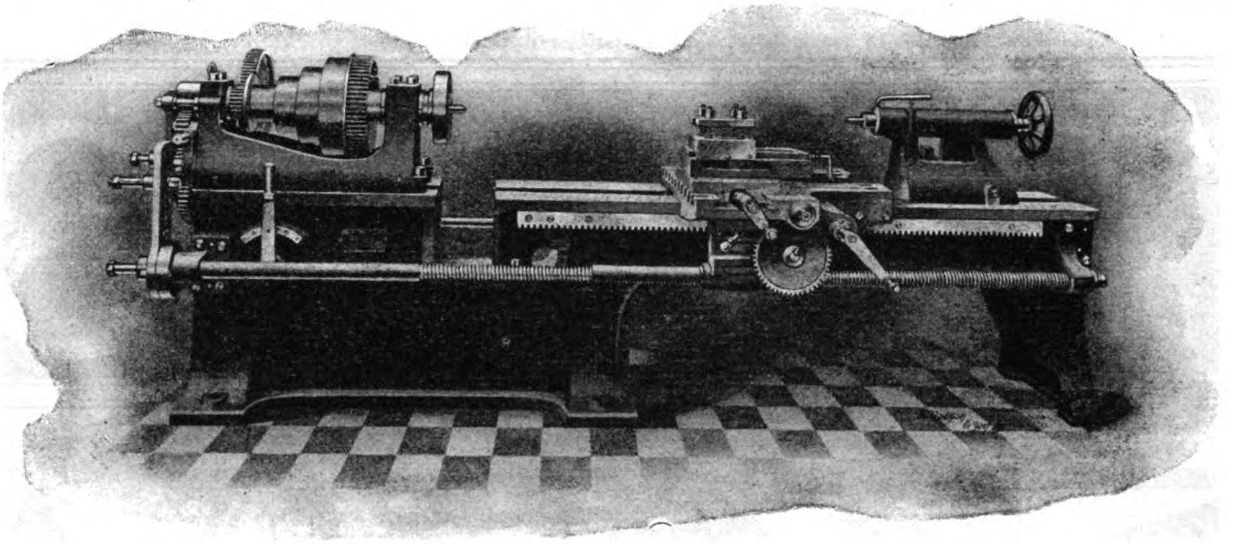

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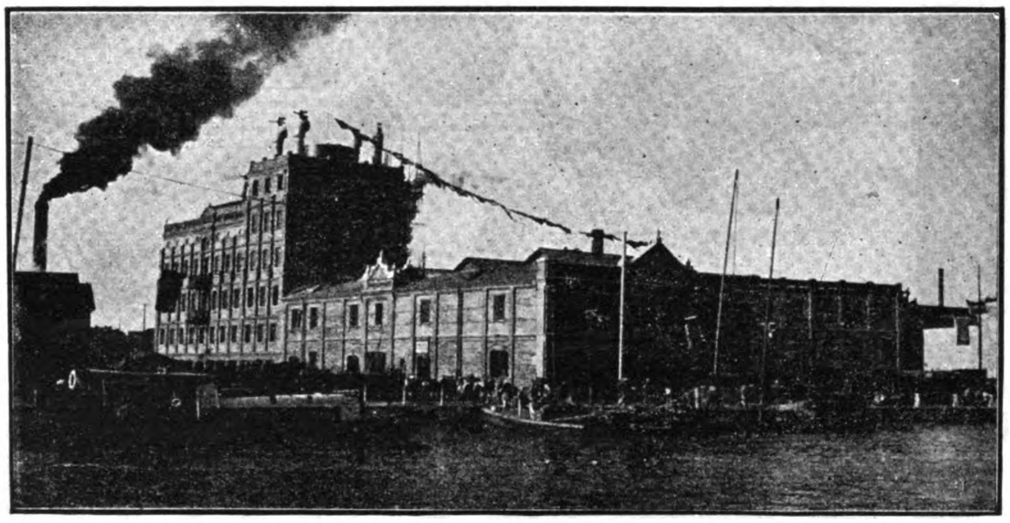

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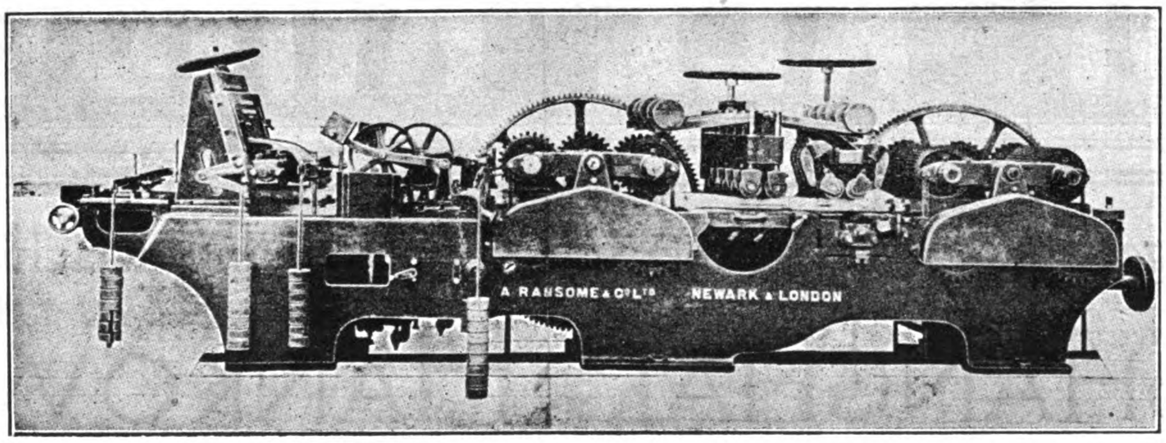

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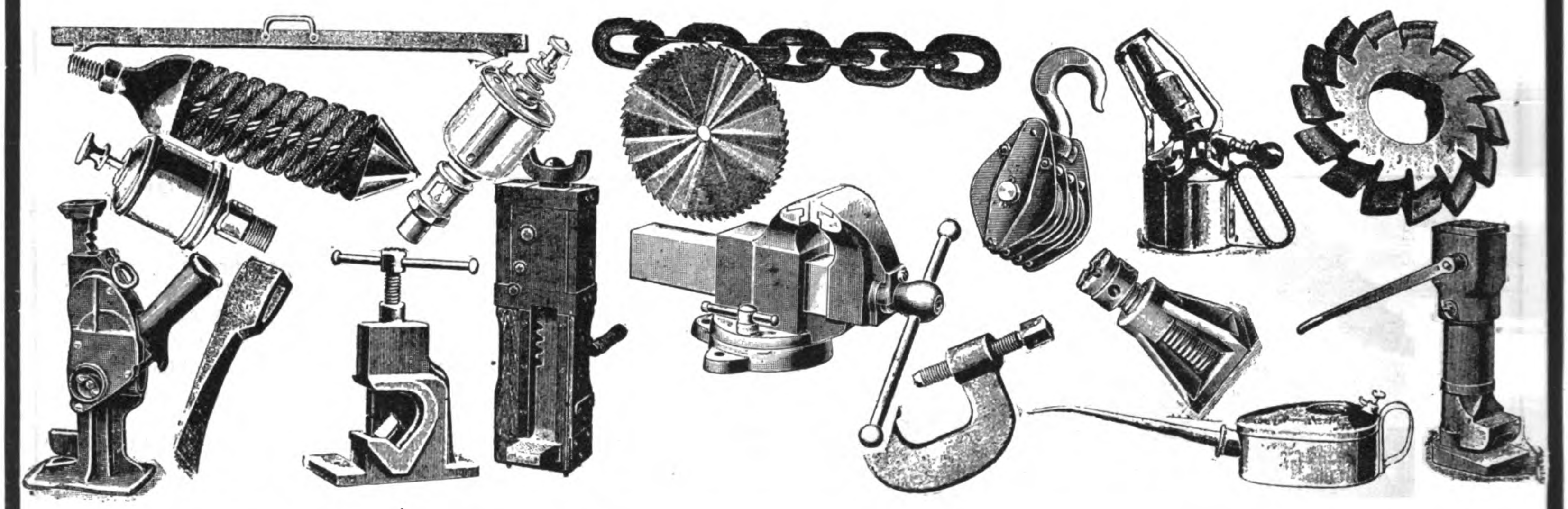

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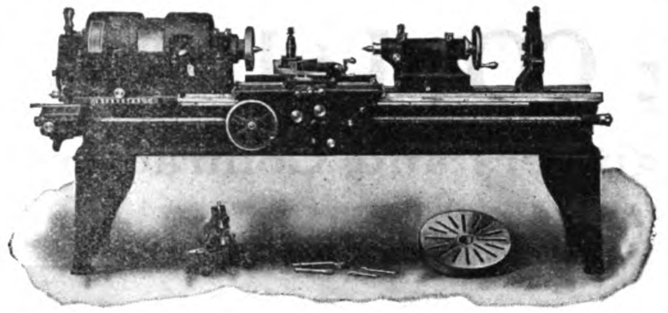

The 9″ centers "Patent Head" Engine Lathe shown opposite has a single driving pulley 12″ in diameter for a 5″ belt. It has all steel quick change gears, giving 40 changes of feed and thread without removing a single gear. The bed is wide, deep, and stiffly braced internally. The tailstock is held by four clamping bolts, all operated from the top, and the tailstock spindle is locked in absolute alignment by plug clamps. The carriage takes full length bearing upon the front and rear outside ways of the bed. The bridge is 9″ wide, and is supported directly beneath the tool by a bearing on the inside way of the bed.

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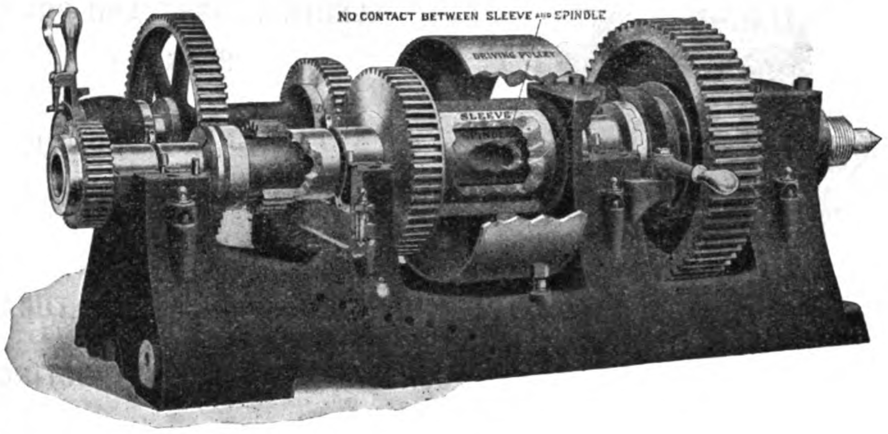

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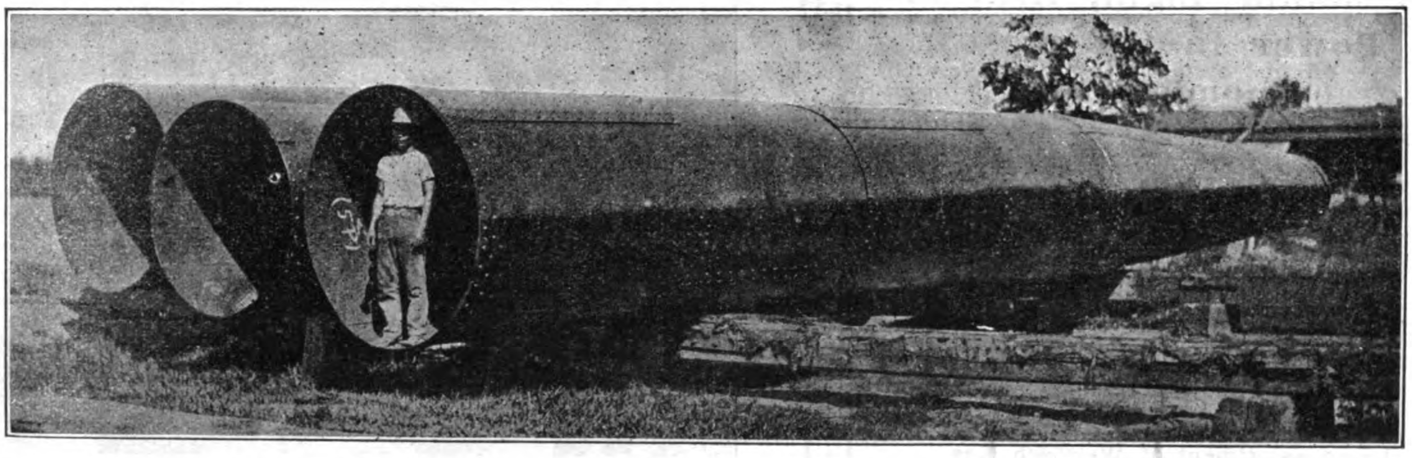

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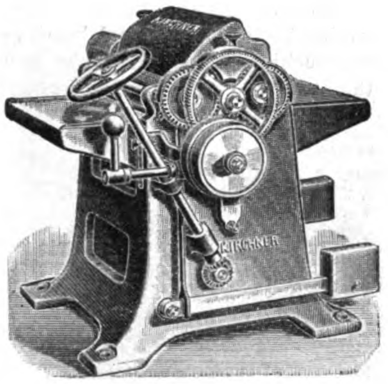

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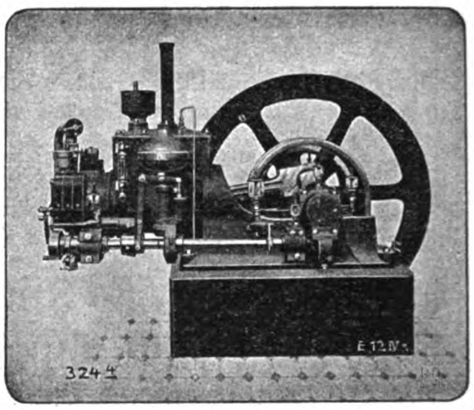

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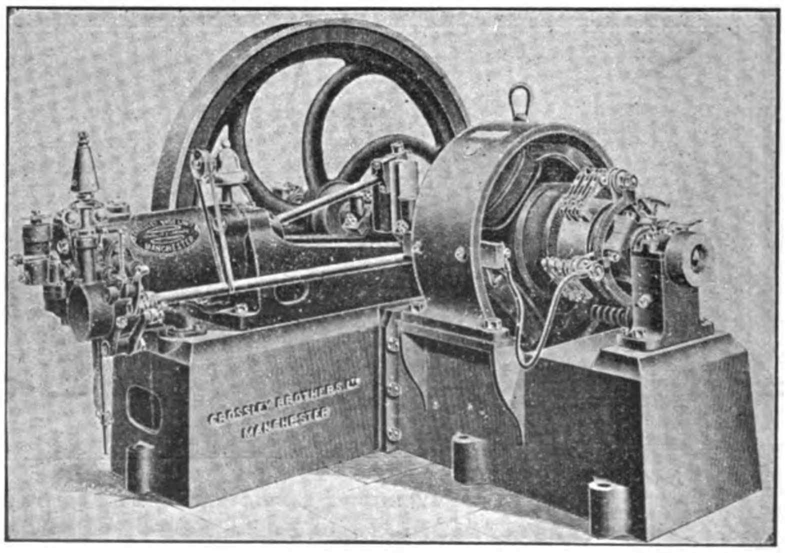

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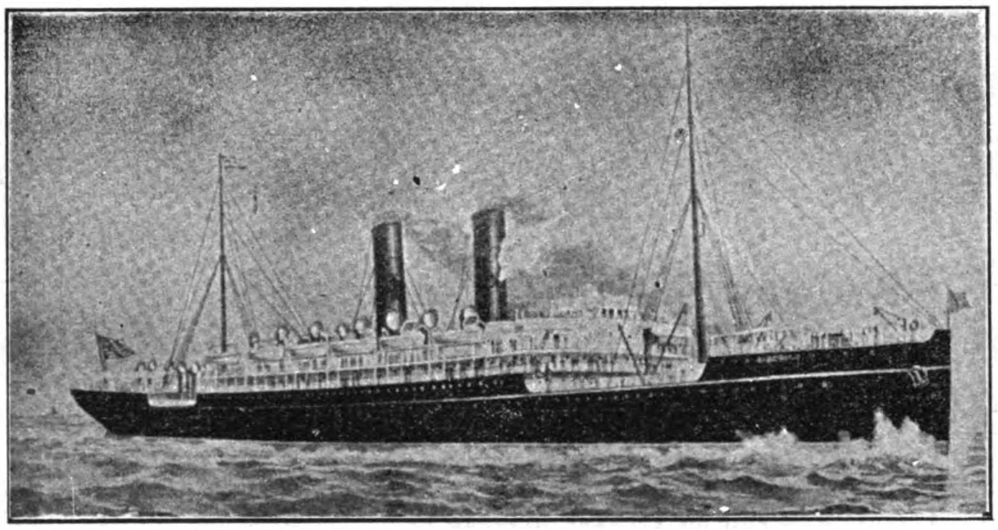

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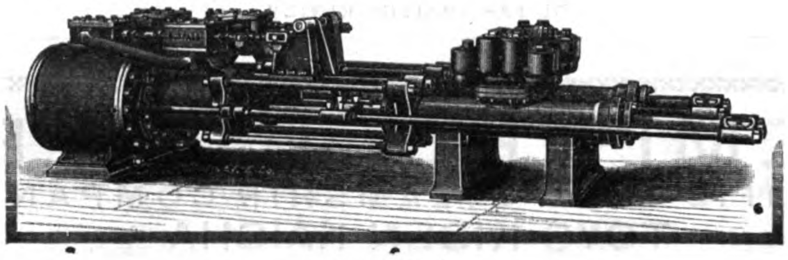

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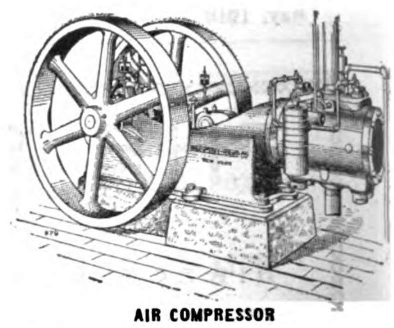

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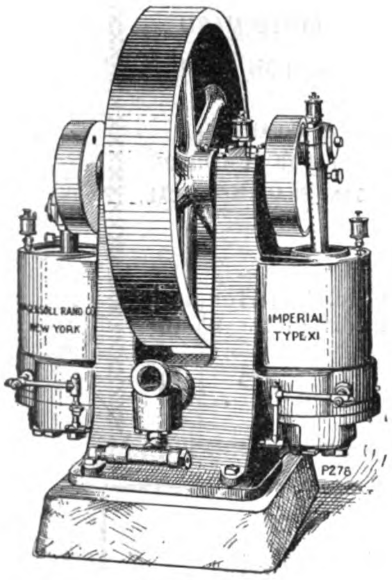

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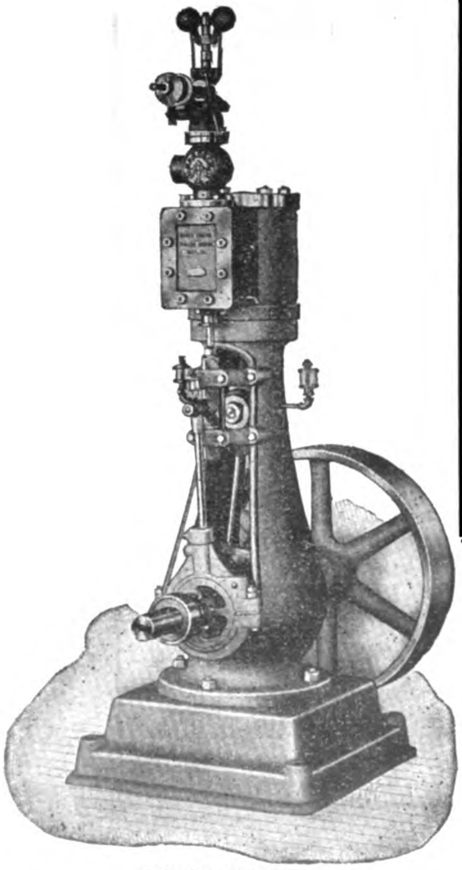

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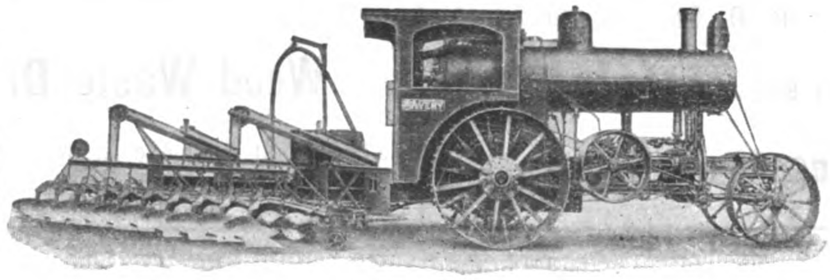

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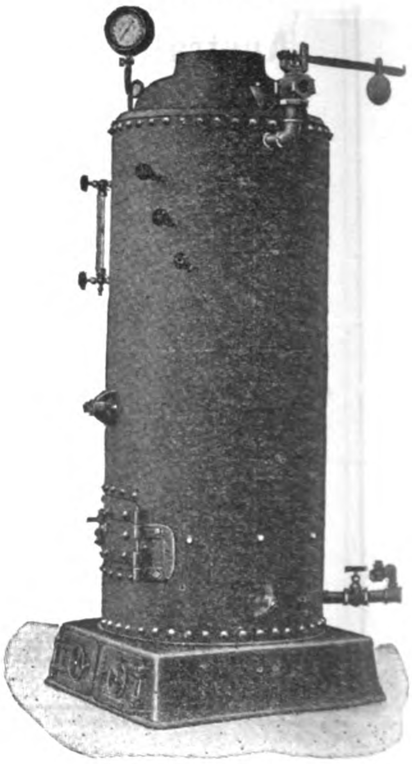

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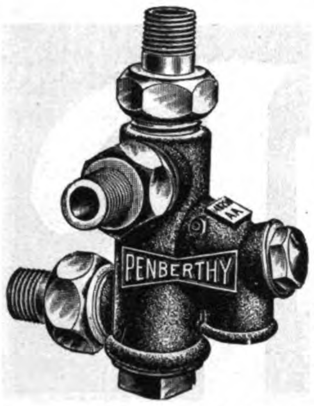

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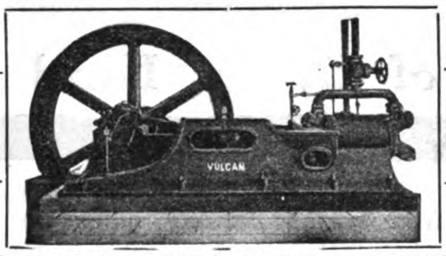
VUL  CAN

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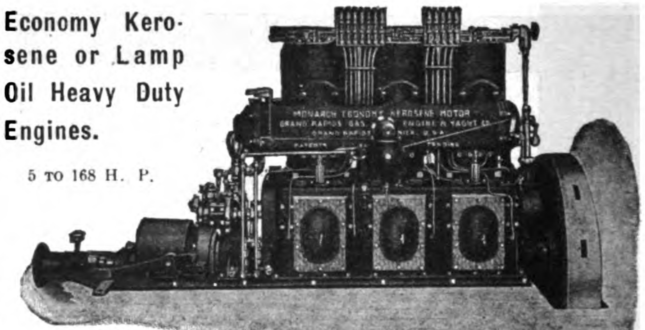

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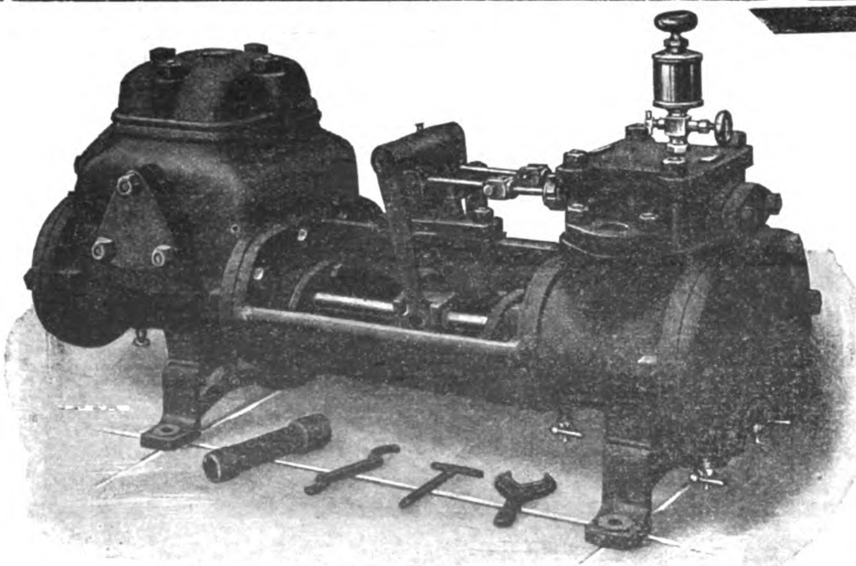

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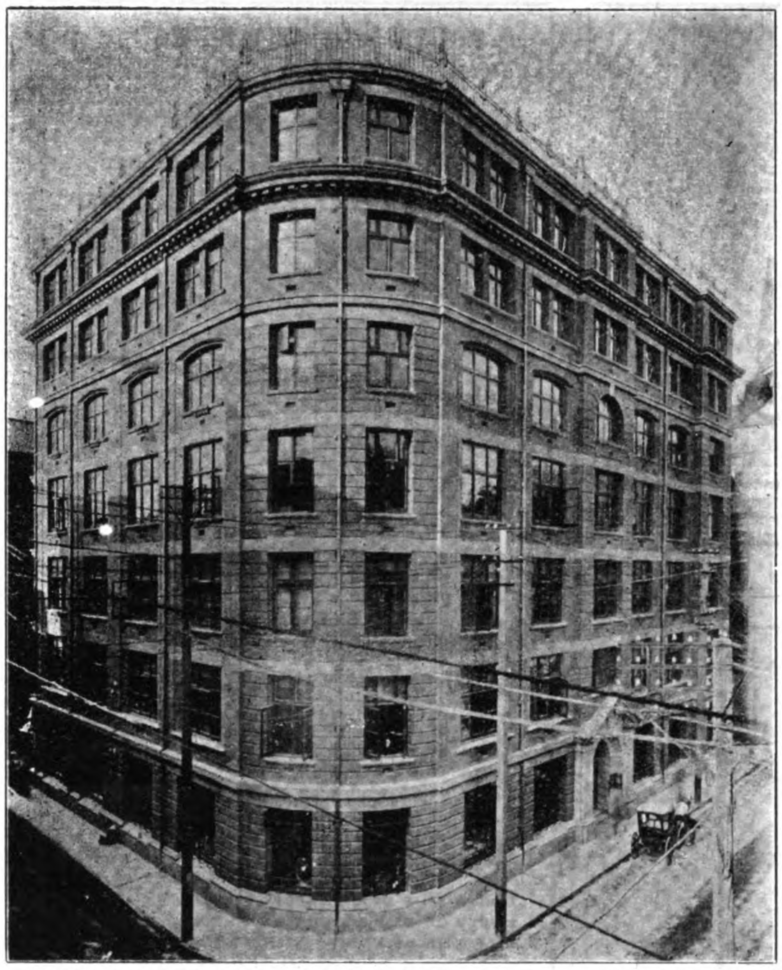

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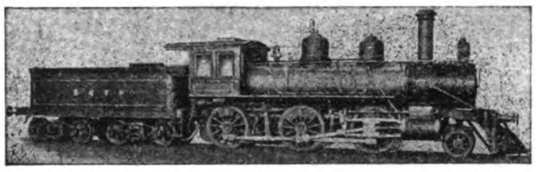

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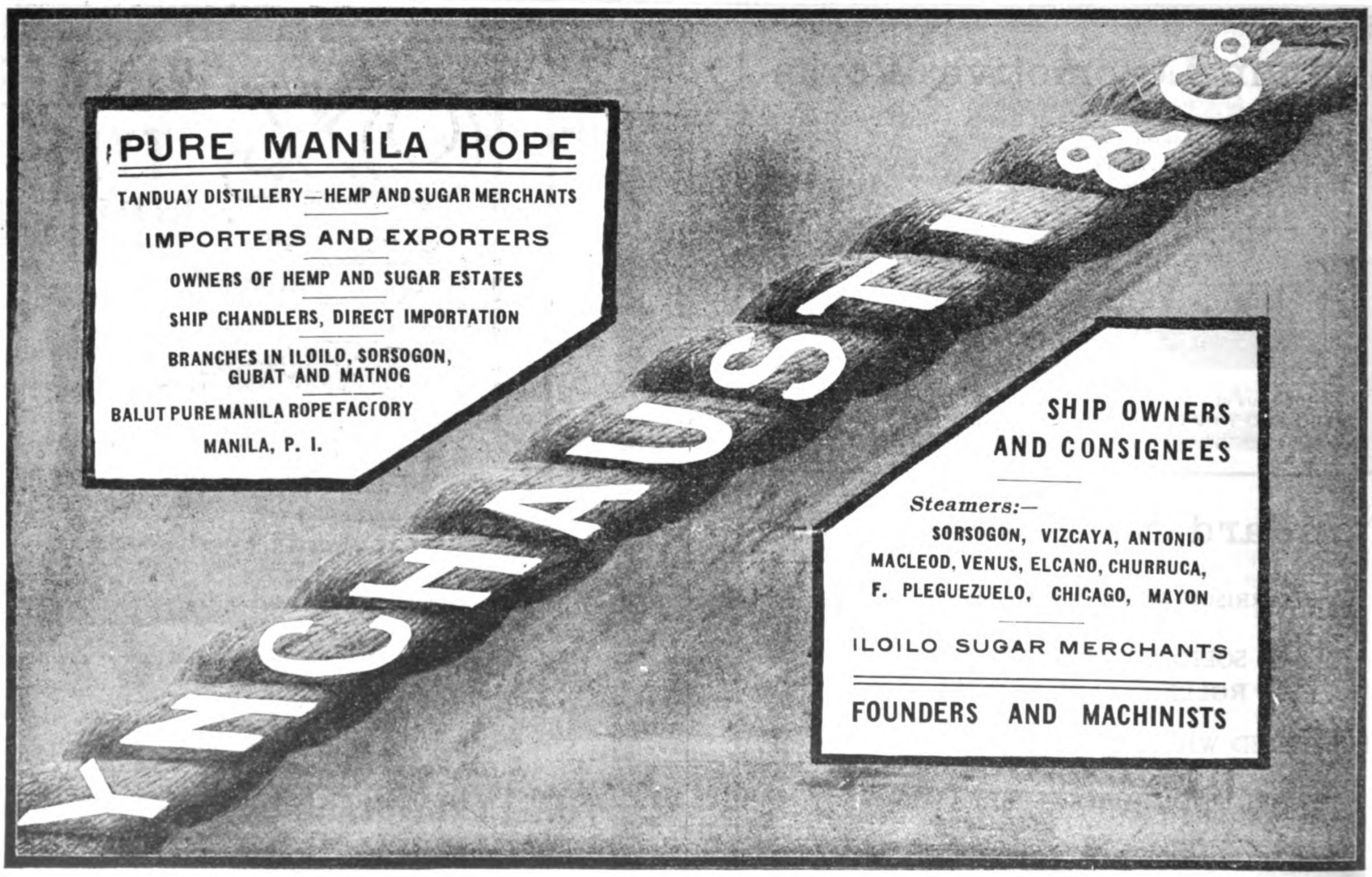

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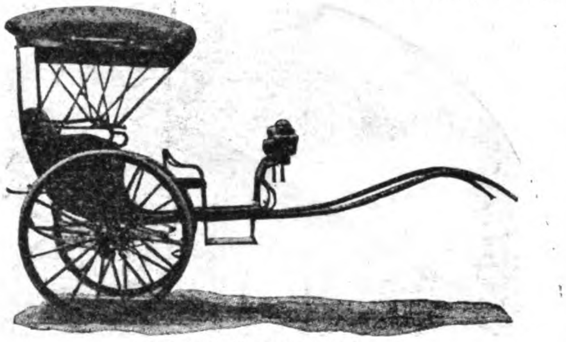

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DEPARTURE	ARRIVAL AT VLADIVOSTOCK		DEPARTURE FROM VLADIVOSTOK	ARRIVE IRKUTSK	ARRIVE MOSCOW	ST. PETERSBURG
			(Harbin Time)	(St. Petersburg Time)		
SHANGHAI Saturday*..........	Thursday, 9.00	31.25 hours	Friday, 4.25......	Tuesday, 1 29...	....	Monday, 6.00
NAGASAKI Monday, 6.00......	do do	31.25 "	Friday, 4.25......	Tuesday, 1.29...	....	Monday, 6.00
TSURUGA Saturday 5 00	Monday 11.00	29.25 "	Tuesday 4 25..	Saturday, 1.29..	Friday, 7.06......	.. ..
TSURUGA Thursday 5 00	Saturday 11.00		Sunday 4 25..	Thursday, 1.29..	Wed., 7.05.......	....

The hours of departure depend upon the tide. The express trains of the Chinese Eastern Ry. Co. leave Vladivostock on Fridays and Sundays. The express leaving on Fridays connect at Irkutsk with the express State trains running between Irkutsk and St. Petersburg via Vologda-Viatka. The Chinese Ry. Co.'s expresses consist of luggage car, restaurant car, two second and one first class cars, and are provided with a 1st class kitchen and servants speaking English and French.

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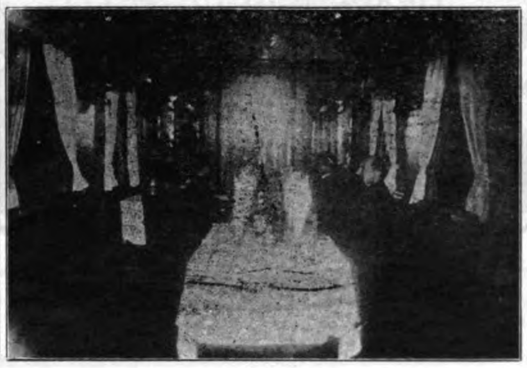

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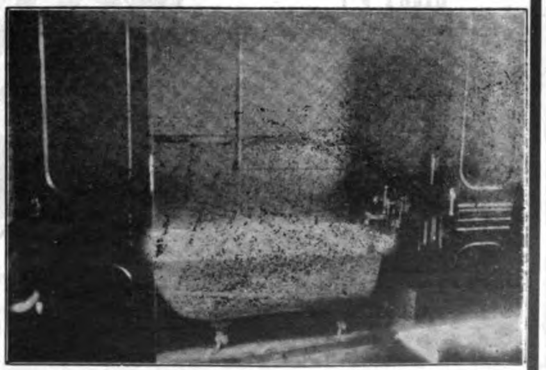
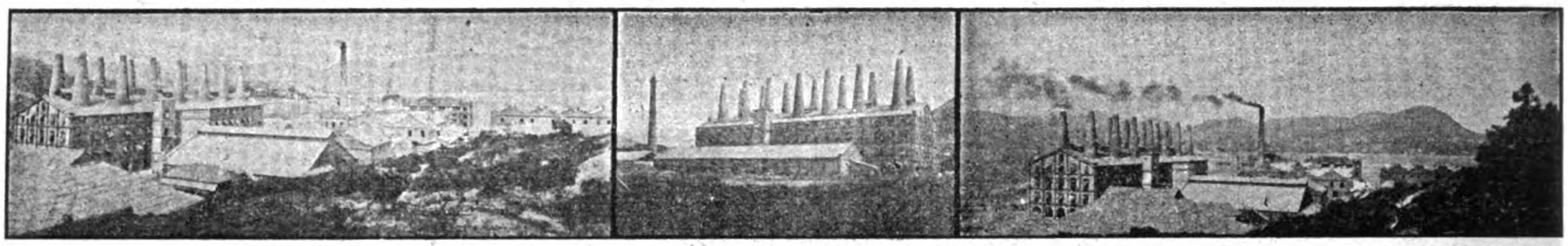
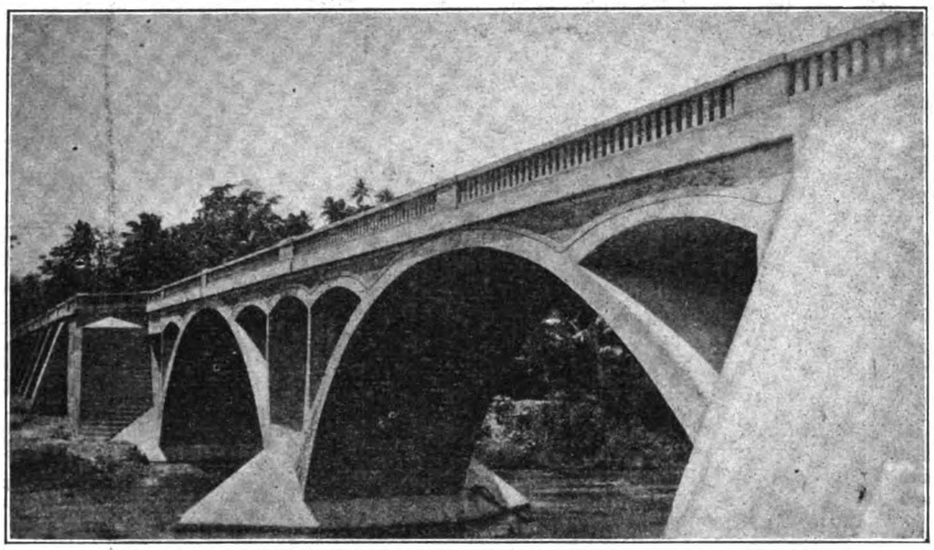


BATH ROOM

GREEN ISLAND CEMENT



WORKS OF THE GREEN ISLAND CEMENT COMPANY, LIMITED, HONGKONG



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Total funds	2,305,376 00
Income for year	2 305,376 00

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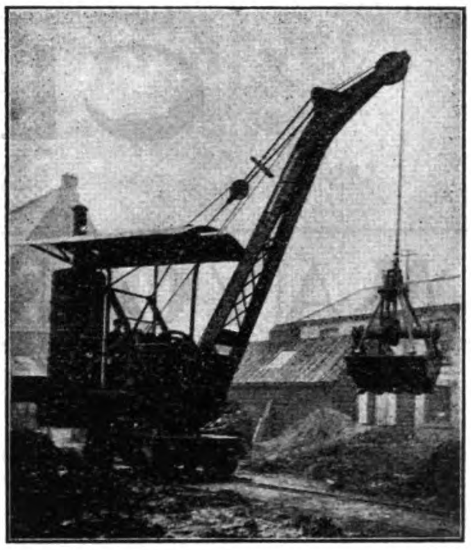

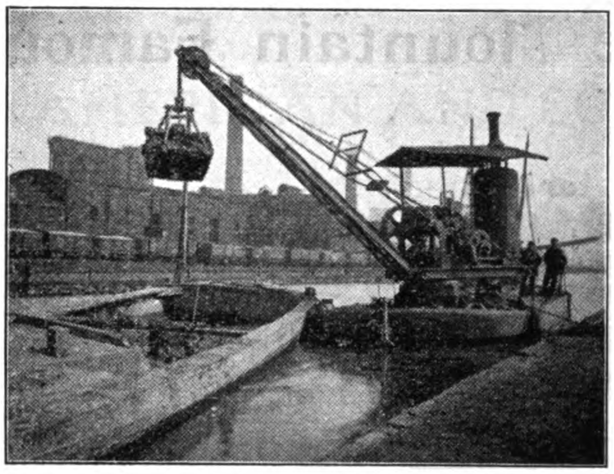

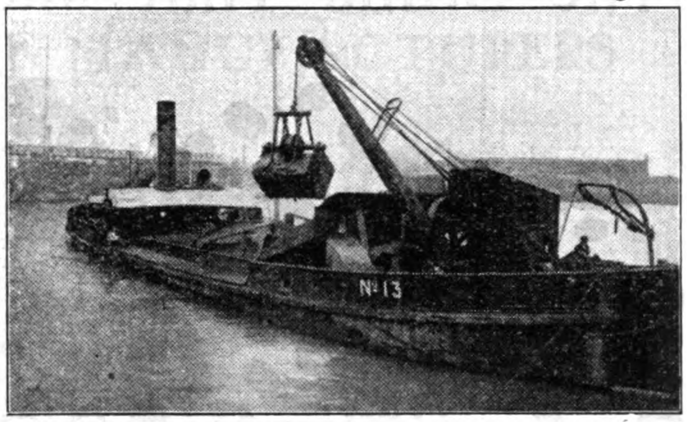

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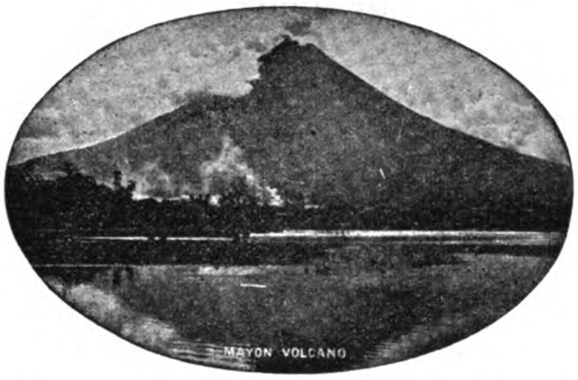

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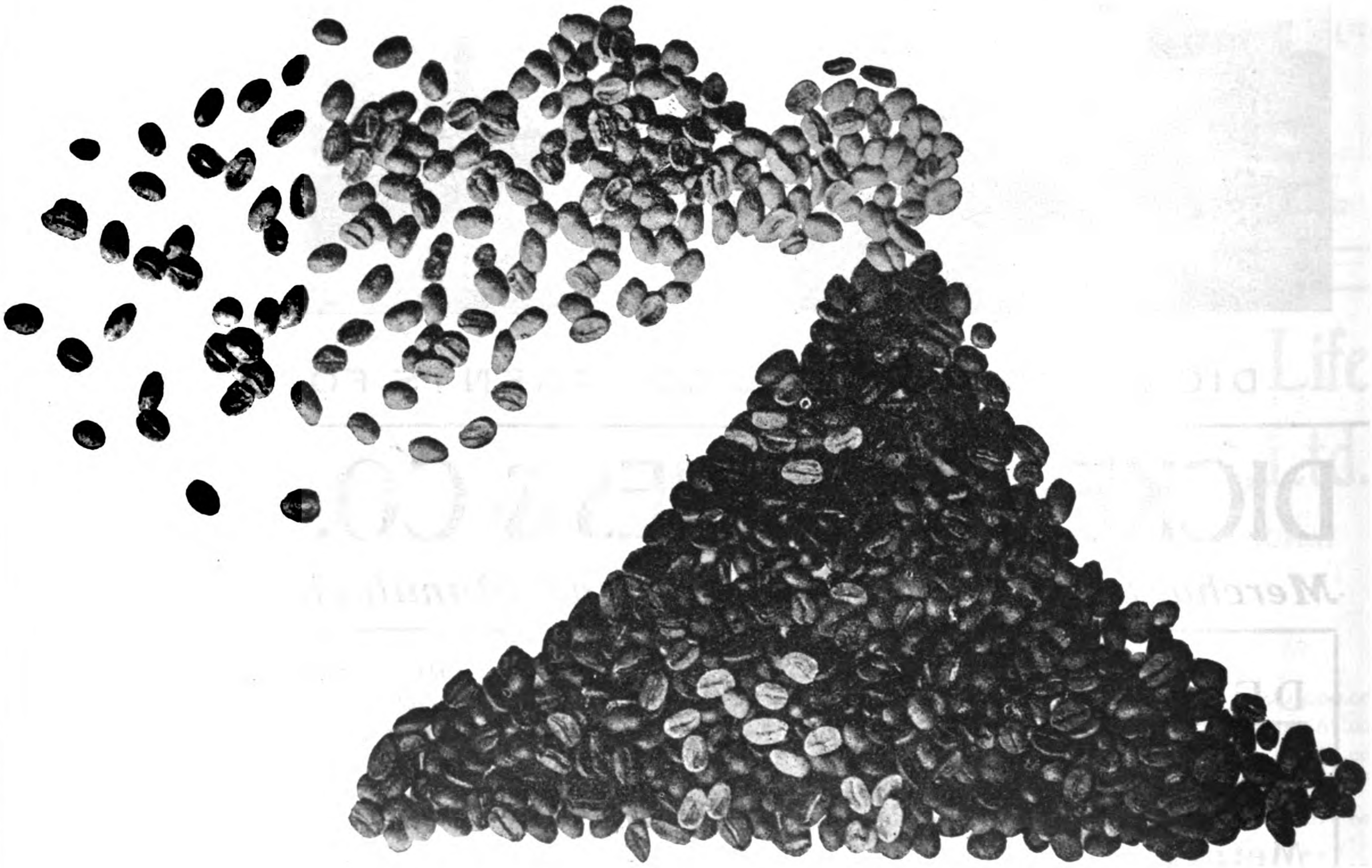

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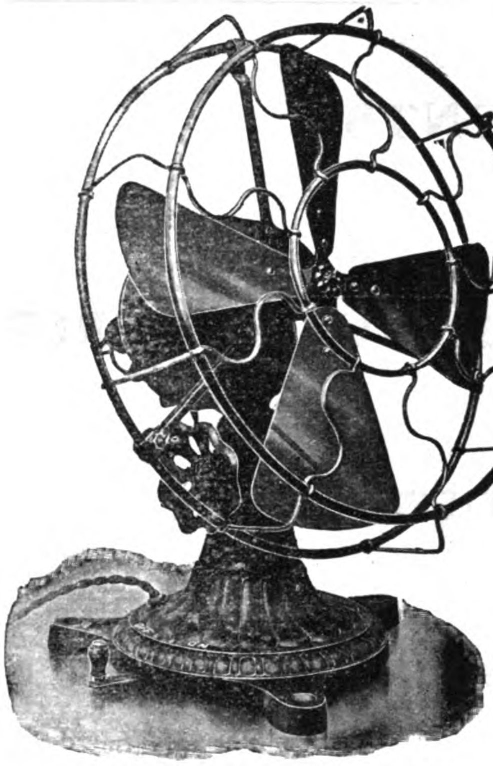

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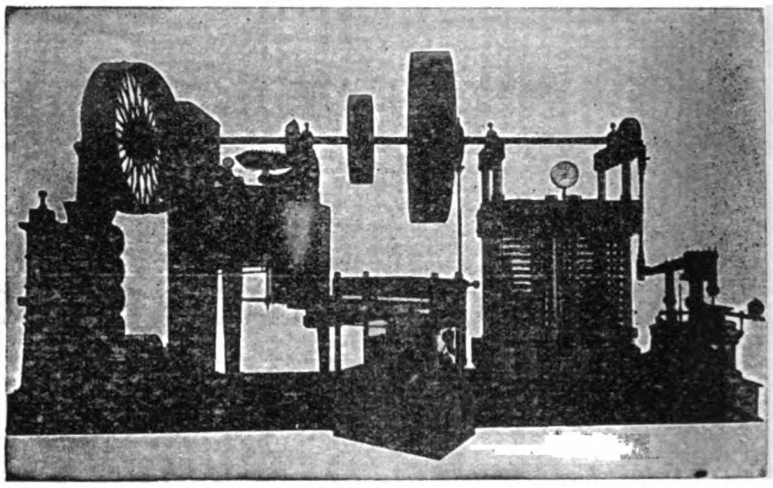

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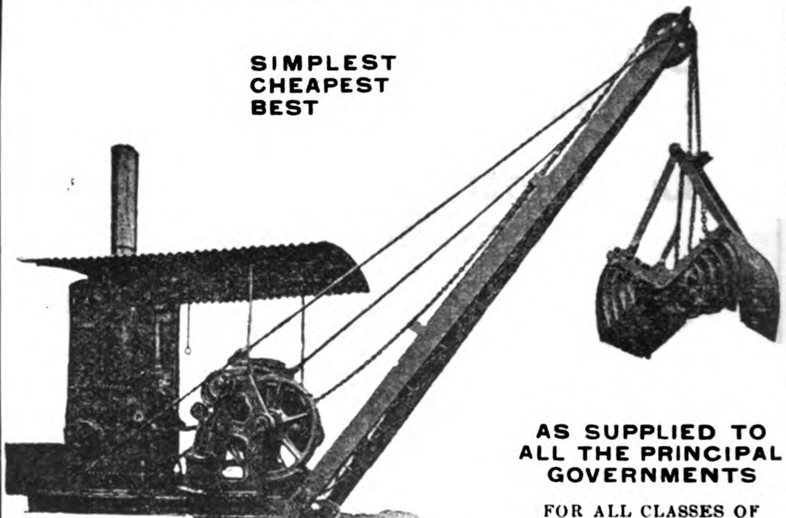

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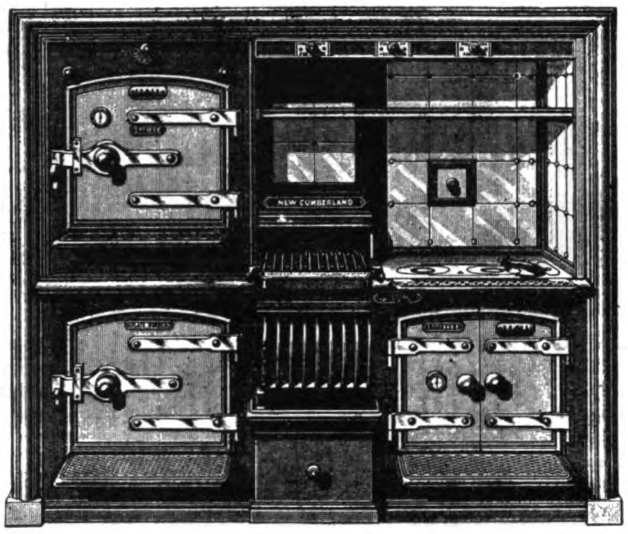

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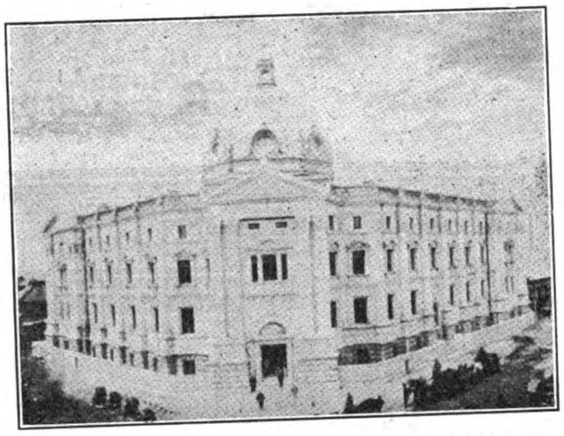

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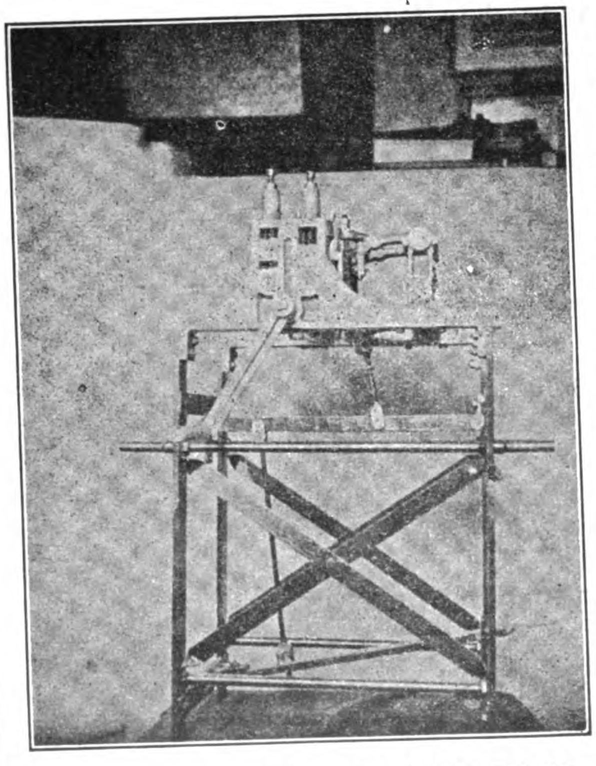

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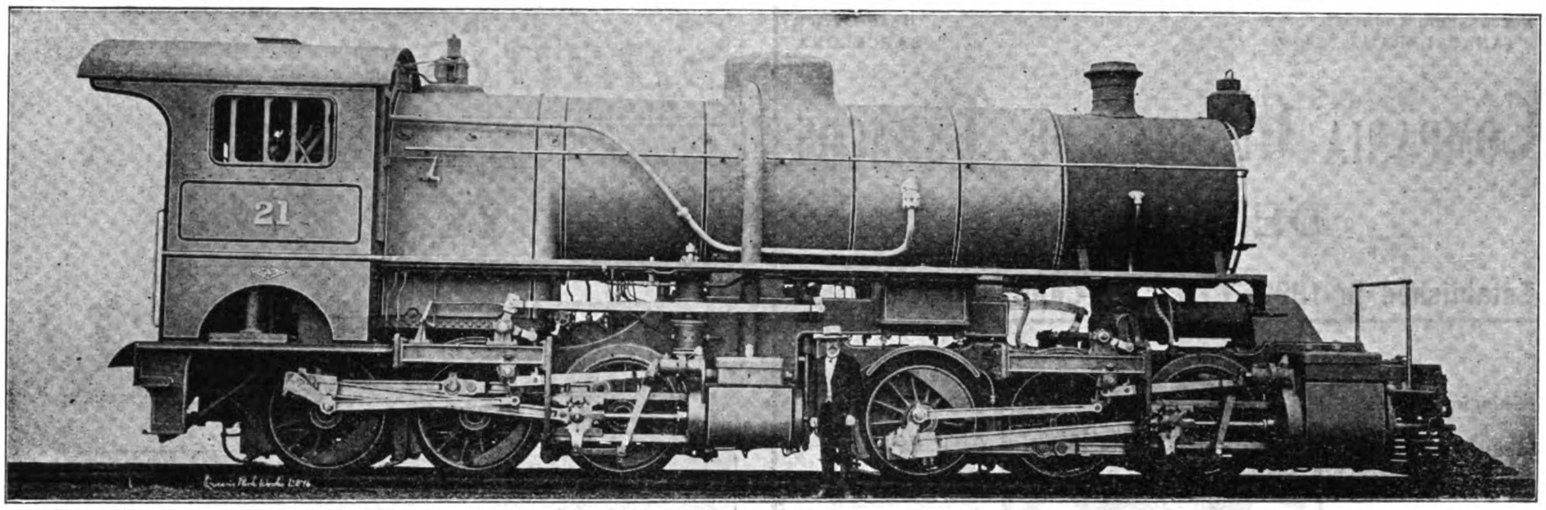

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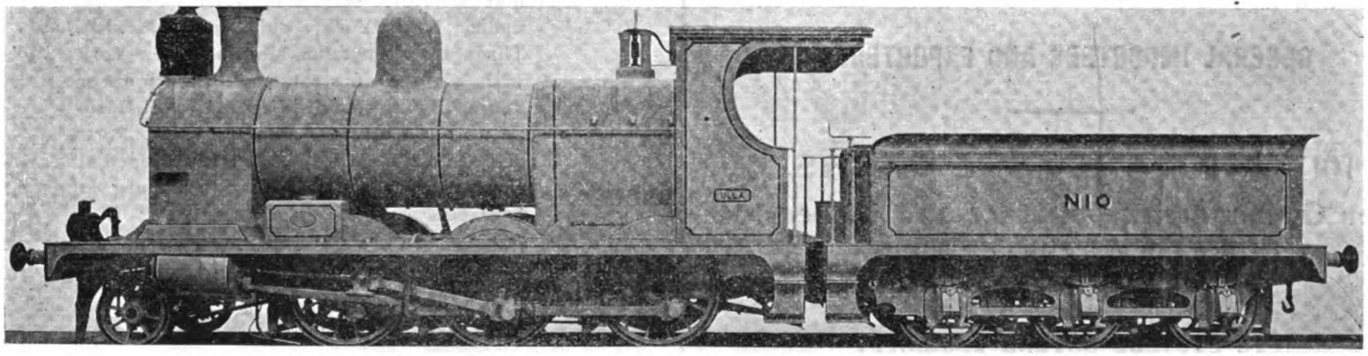

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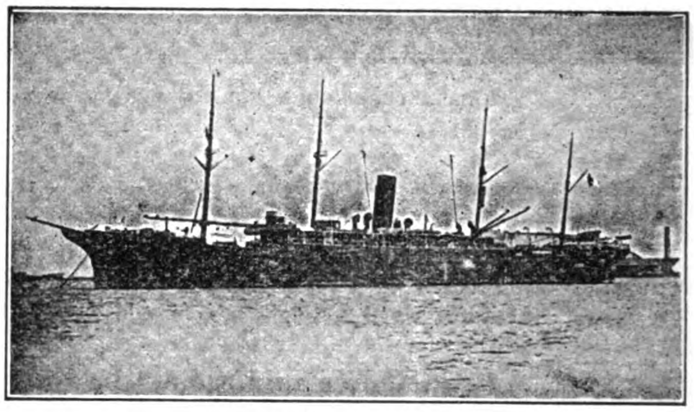

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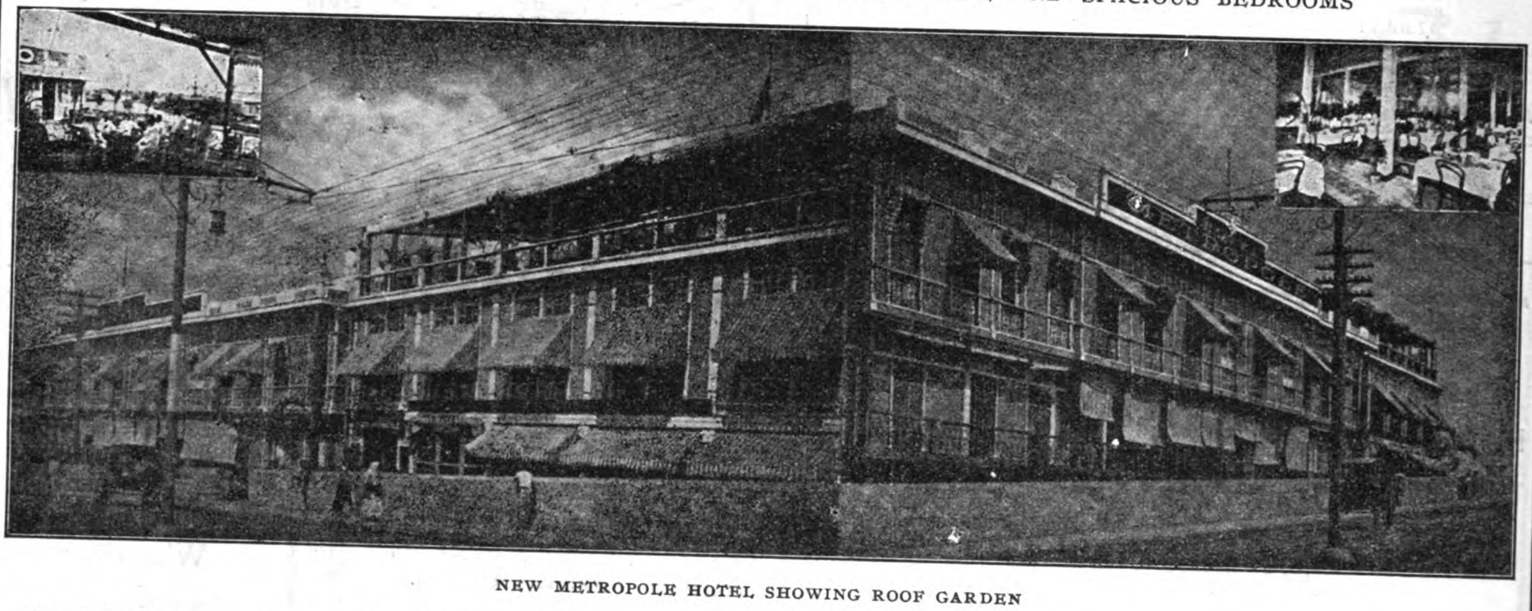

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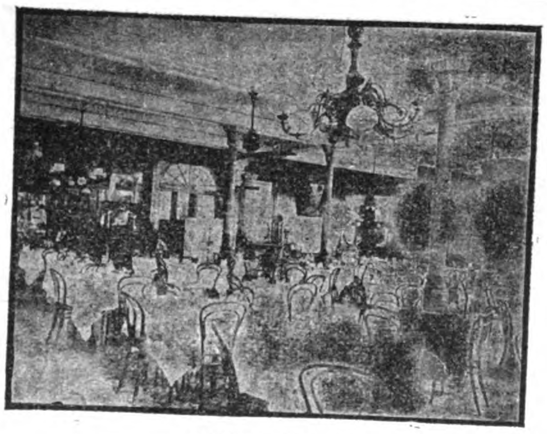

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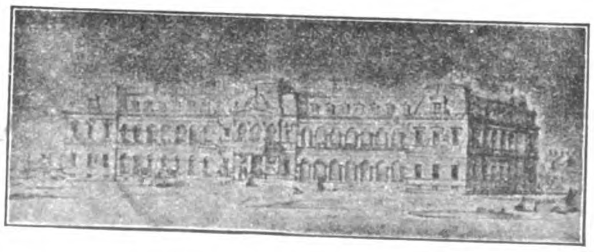

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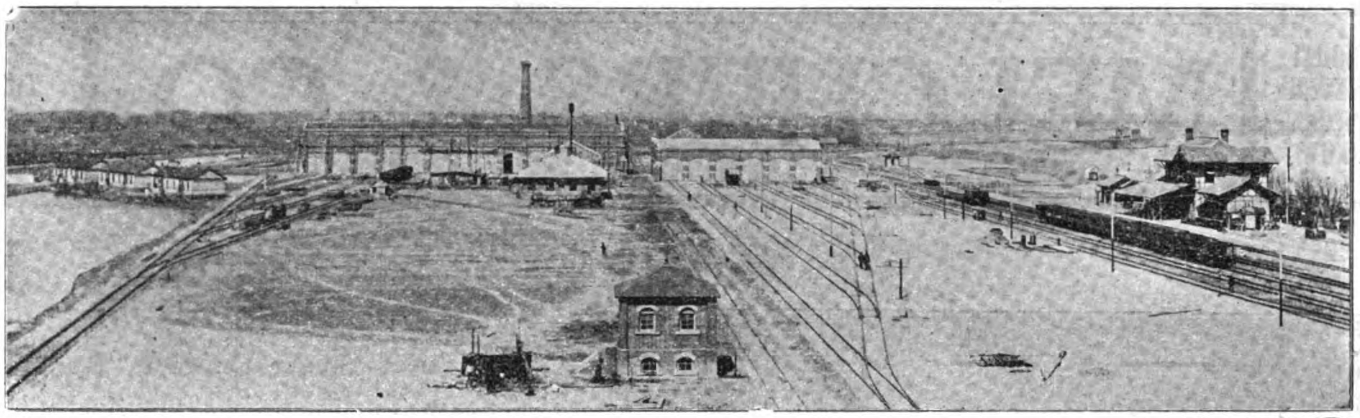

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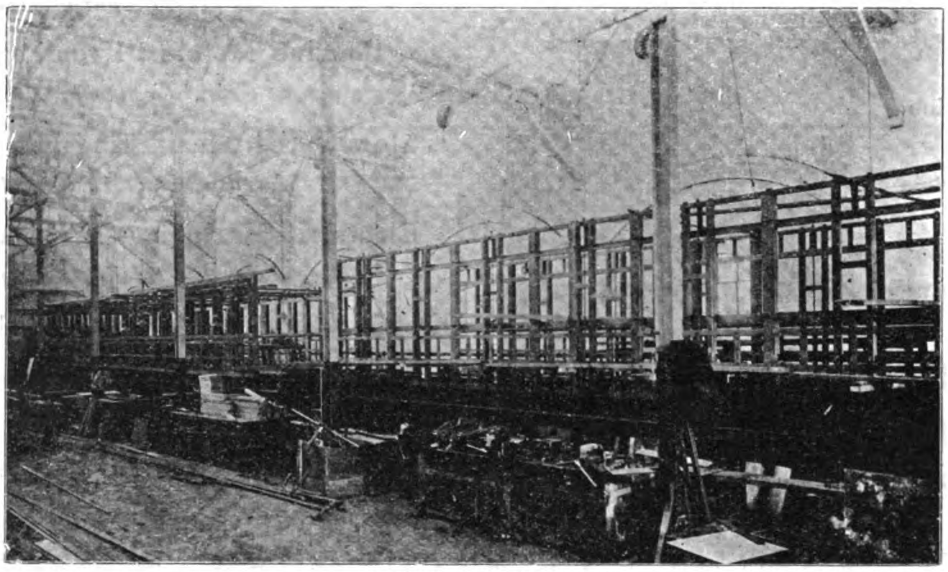

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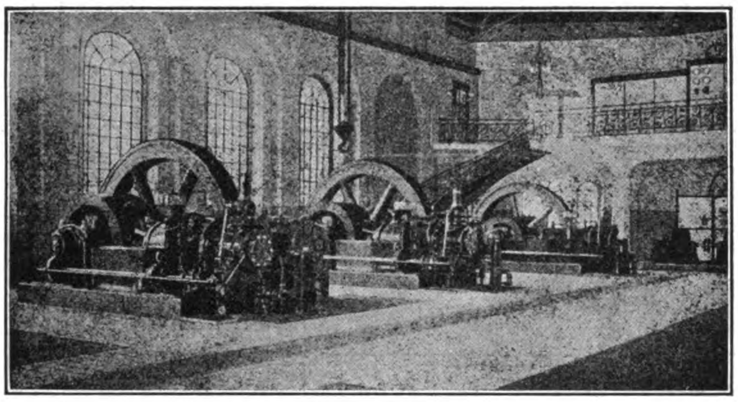

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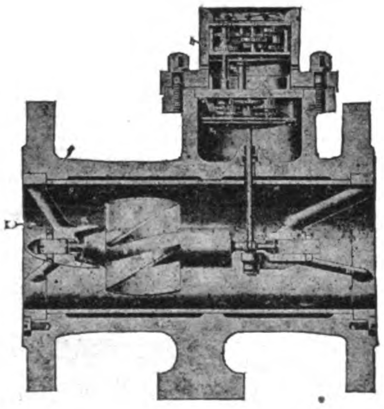

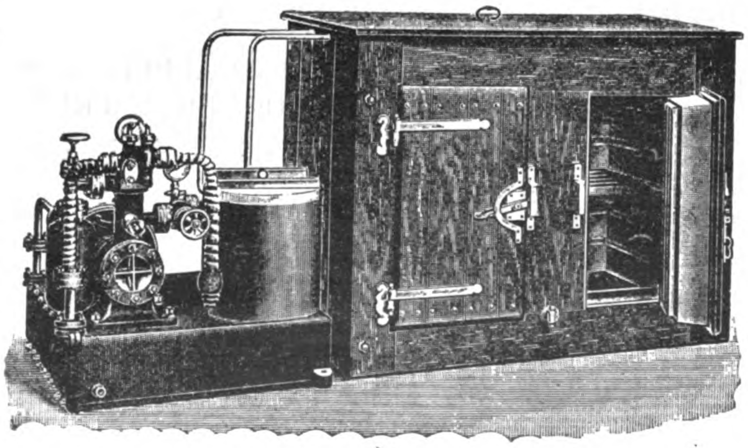

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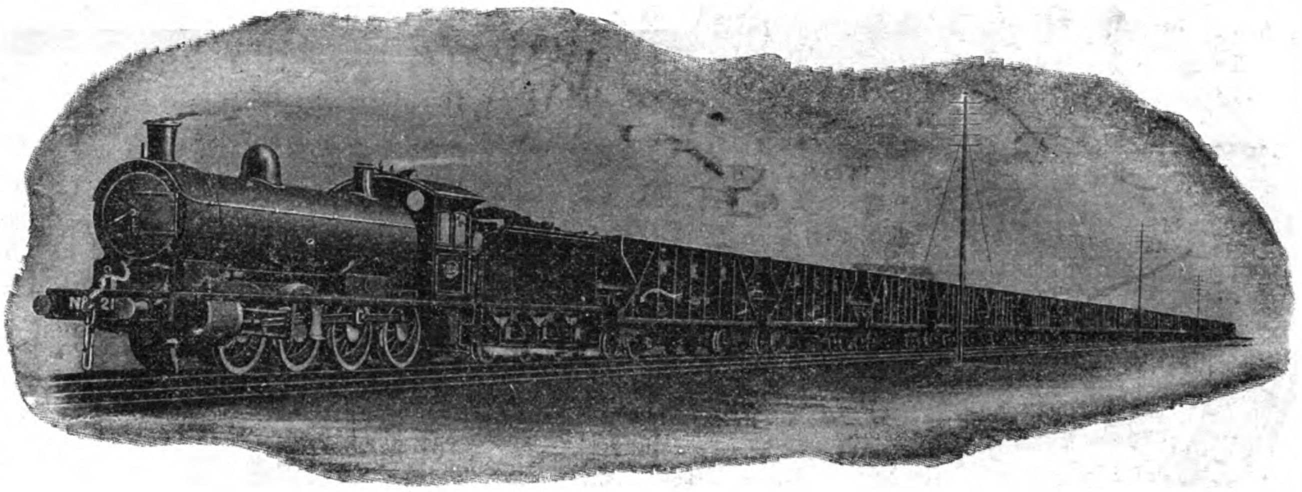

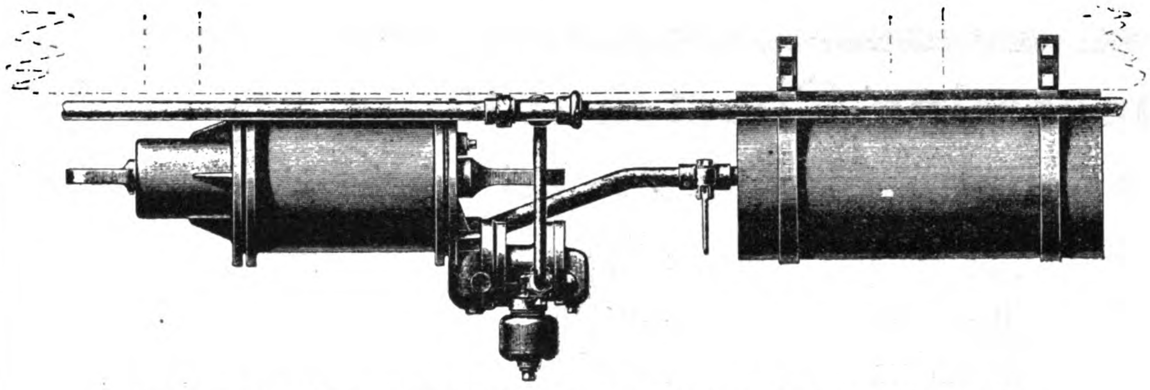

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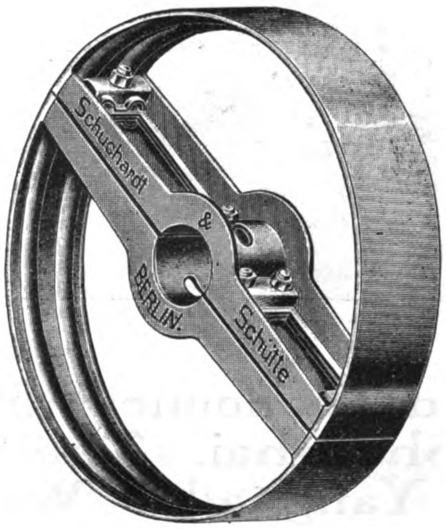

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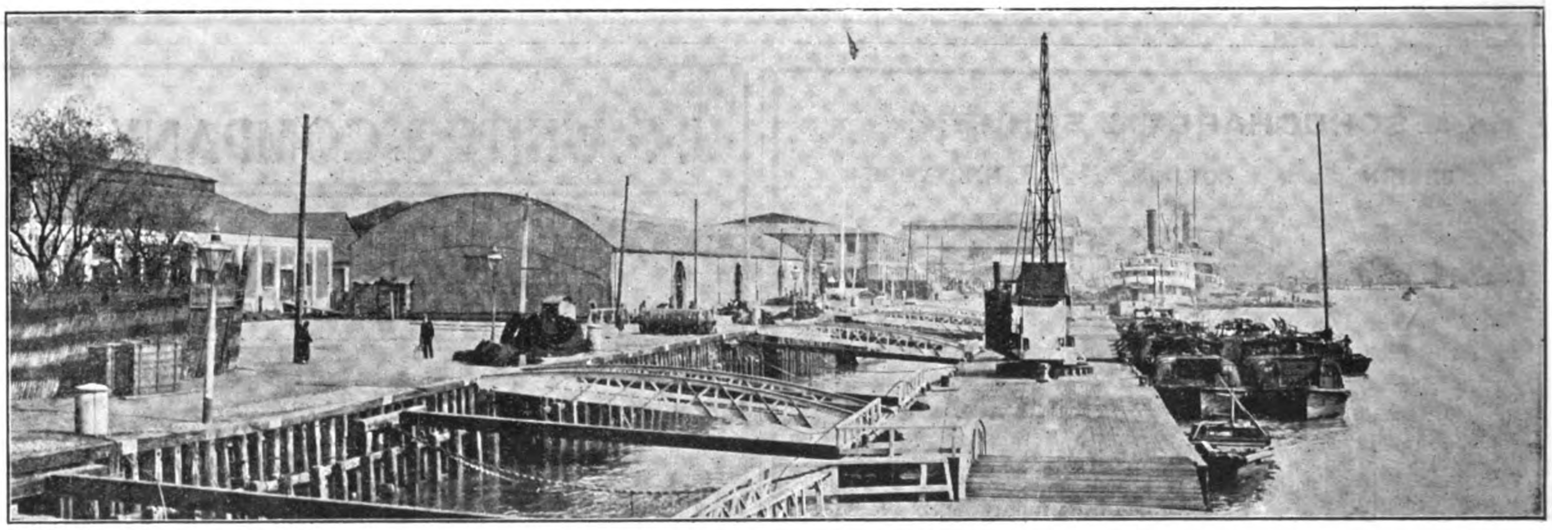

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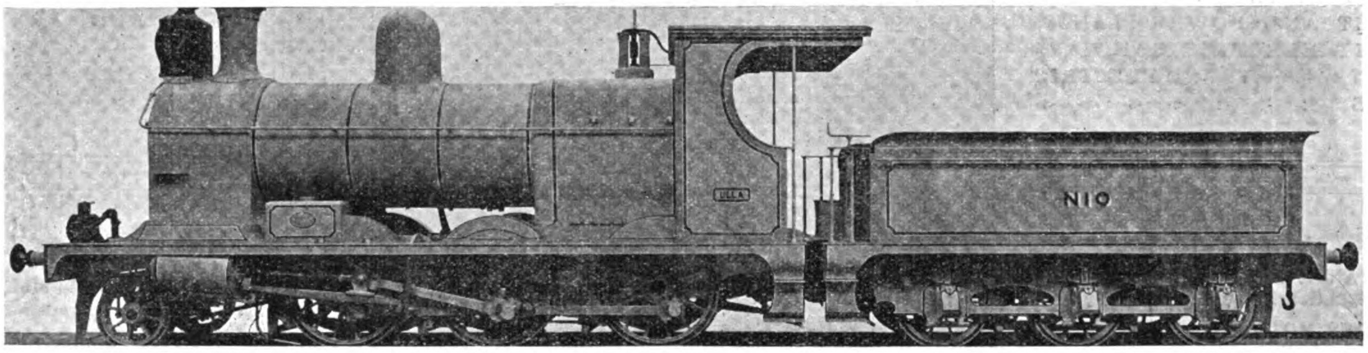

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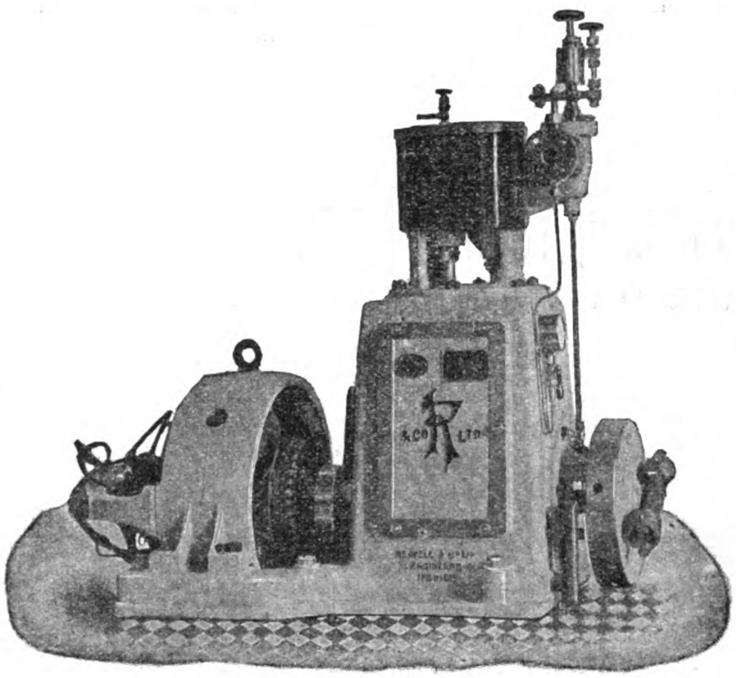

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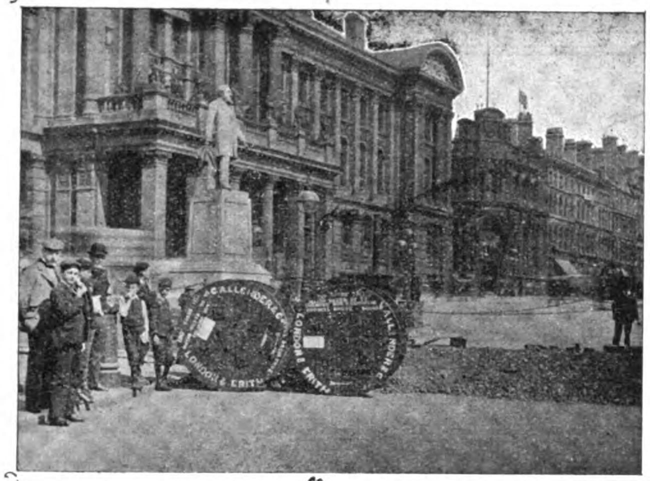

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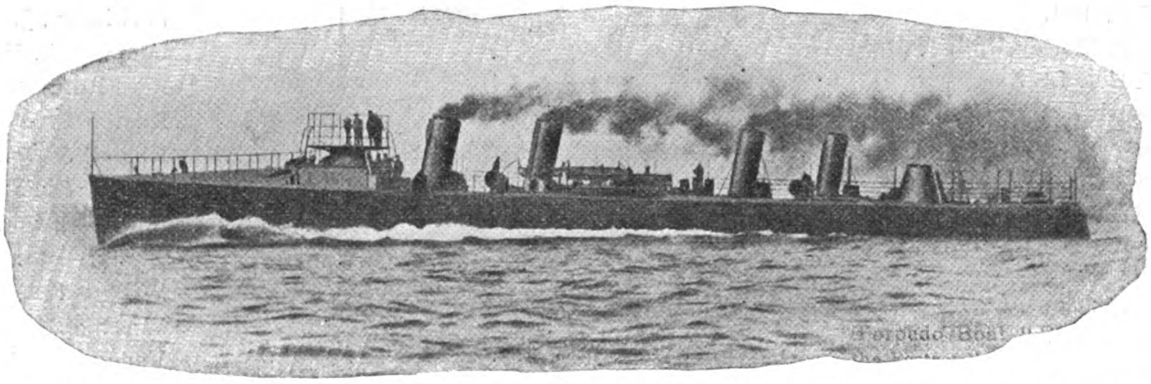

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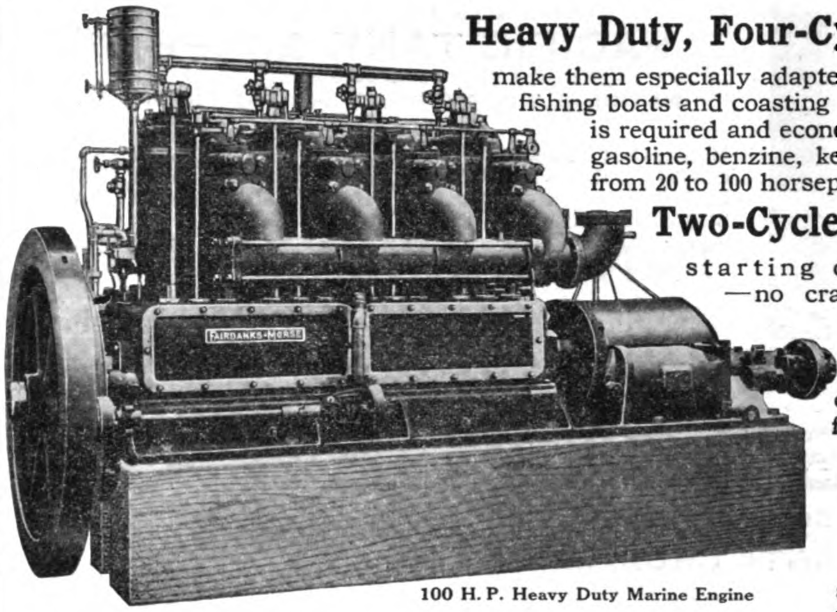

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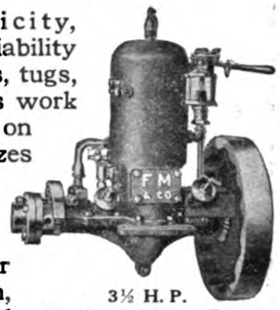

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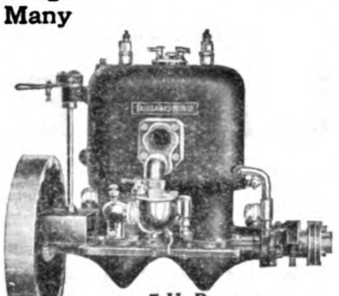

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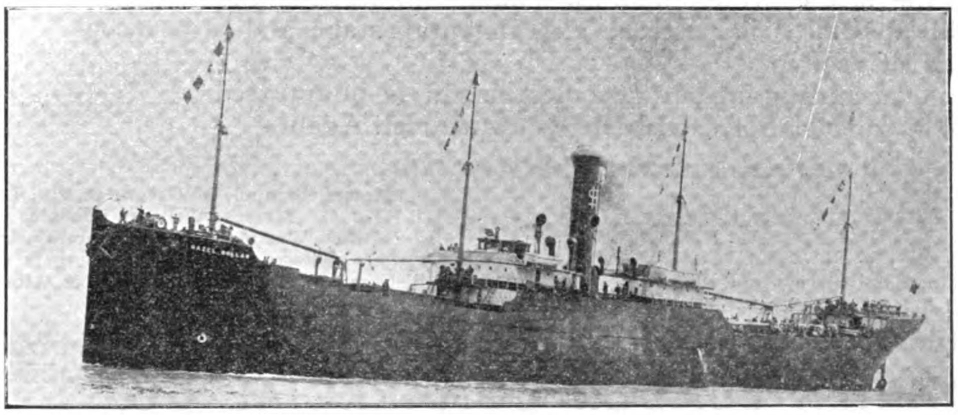

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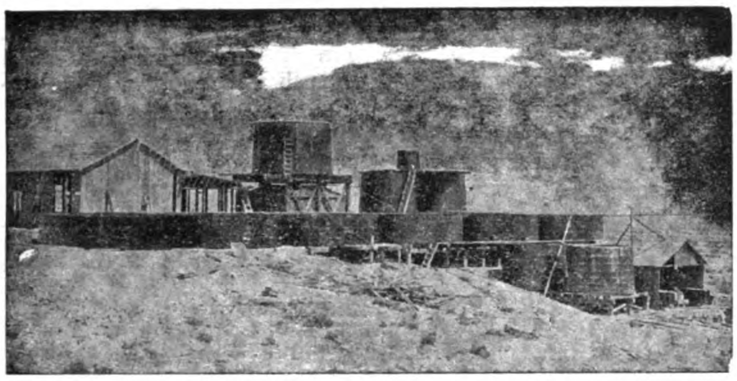

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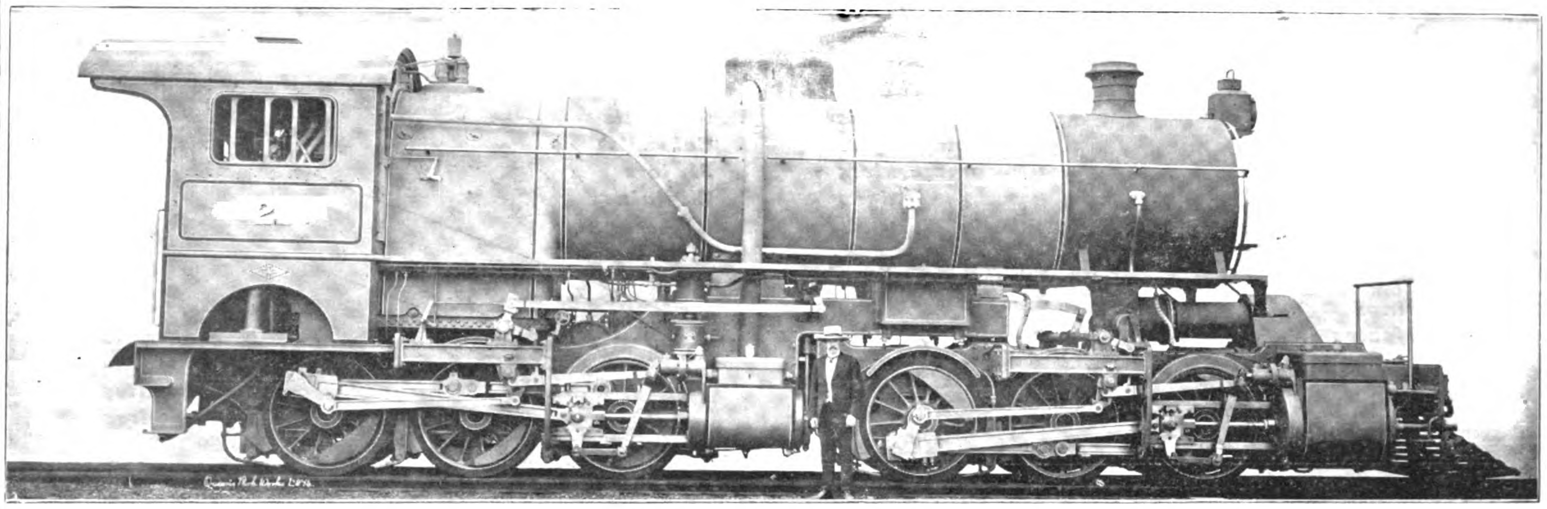

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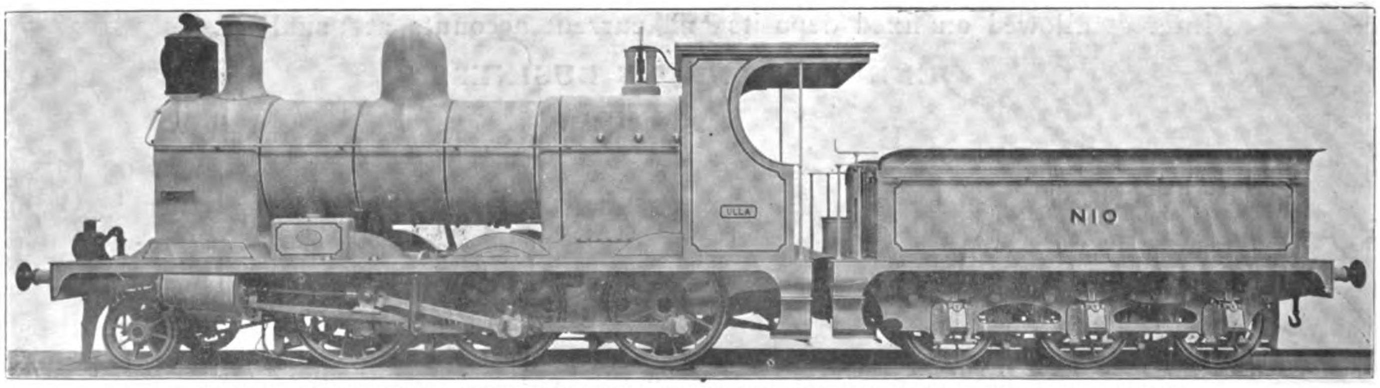

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